



# LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

Transport Assessment (TR-001-000)

Part 3: London assessment

Traffic and transport

November 2013

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# Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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## 6 London Region

### 6.1 Introduction and scheme description

- 6.1.1 This section of the TA outlines the regional assessment undertaken for the Proposed Scheme within London between Euston - Station and Approach (CFA 1) and South Ruislip and Ickenham (CFA 6).
- 6.1.2 The key issues within London are construction and operation of Euston station (CFA1, the link to HS1 along the alignment of the North London Line (CFA2), tunnelled sections of route (CFA3 and CFA5) with Old Oak Common station (CFA4) construction and operation between these two areas and finally construction of the surface section as the route leaves tunnel and then leaves the London region.
- 6.1.3 For the purpose of the Environmental Statement, the region is divided into:
- CFA 1 – Euston – Station and Approach;
  - CFA 2 – Camden and HS1 link;
  - CFA 3 – Primrose Hill to Kilburn (Camden);
  - CFA 4 – Kilburn (Brent) to Old Oak Common;
  - CFA 5 – Northolt Corridor; and
  - CFA 6 – South Ruislip to Ickenham.
- 6.1.4 Within London, stations will be located at Euston (CFA1) and Old Oak Common (CFA4) and these are consequently a particular focus of the assessment. Equally, during operation there are very few impacts other than those arising from the operation of these two stations.
- 6.1.5 In addition, during construction the majority of construction works in CFAs 3 and 5 are contained within tunnel. Therefore any impacts are expected to be concentrated within the vicinity of construction compounds, vent shaft sites and on access routes. For public transport there are only localised impacts or knock-on impacts of congestion with the exception of works at Euston station. Consequently public transport modelling for construction has only been undertaken to examine impacts at Euston.
- 6.1.6 The nature of the scheme within London means that it provides a more coherent description of the impacts to report the assessment on the basis of groups of CFAs. This is particularly the case in operation when most impacts arise as a result of operation of the two stations and consequently there are only two 'sources' that need to be considered. However, equally during construction there is substantial overlap between the impacts in neighbouring areas.

- 6.1.7 As a consequence this London assessment presents the assessment for groups of CFAs as set out in Table 6-1.

Table 6-1: London assessment reporting structure

Section	Description
6.3	Proposed Scheme description and future baseline assessment for:  Euston - Station and Approach (CFA 1)  Camden and HS1 Link (CFA2)  Primrose Hill to Kilburn (Camden) (CFA3)
6.4	Construction impact assessment for:  Euston - Station and Approach (CFA 1)
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6.9	Scheme description, future baseline, construction and operation assessment for South Ruislip to Ickenham (CFA6)
6.10	London Region sensitivity analysis

- 6.1.8 Impacts on the public transport and highway networks have been assessed. Assessment has been carried out for construction impacts on the London transport network, assessed in future year (2021), with operation assessment undertaken for two years – opening year with Phase One (2026) and opening year plus 15 years with Phase Two (2041).
- 6.1.9 Further assessments have been carried out to understand the impact of HS2 with potential complementary schemes that have been suggested by TfL for assessment within London. These impacts have been reported in a final subsection and cover:
- Overground connectivity at Old Oak Common;

- Crossrail extension to WCML; and
- Crossrail 2.

6.1.10 In addition, there are proposals from TfL and Camden Council for conversion of Tottenham Court Road to two-way working and these have also been assessed. This has been reported in CFA 1.

6.1.11 The remainder of this section identifies the specific elements of the assessment methodology for this region, including the use of the public transport model Railplan and highway models, CLoHAM and WeLHAM. Where there are particular assumptions or methodology related to individual CFAs then these are considered within the individual CFA sub-section.

## 6.2 Regional methodology and assumptions

### Introduction

6.2.2 This chapter describes the methodology and assumptions adopted in the London area where they differ from those already described in the route-wide methodology and assumptions section or where more detailed information is necessary. Where there are specific modelling approaches relevant to individual CFAs these are considered within the relevant CFA chapters.

6.2.3 Specific issues covered in this section are:

- stakeholder engagement;
- London modelling framework;
- regional highway modelling;
- regional public transport modelling; and
- local assessment – junction modelling.

6.2.4 The dominant impacts for the Proposed Scheme operation scenario arise from Euston Station and Old Oak Common Station. Consequently there are very few impacts due to the Proposed Scheme activities in other areas.

## Stakeholder engagement

- 6.2.5 A number of stakeholder organisations were consulted during the development of the modelling methodology adopted for London. The views of all London boroughs along the line of route were sought on the scope of the TA. Reflecting the London-wide remit of TfL and the particular issues regarding development of Euston station, discussions were primarily focused on TfL and the LBC. All modelling was undertaken in close cooperation with TfL with regular meetings on highway and public transport modelling. Railplan modelling for the Euston station and broader London Metropolitan areas was undertaken by TfL to the agreed specification of HS2 Ltd and outputs were reviewed by HS2 Ltd and its consultants. The development of TfL's sub-regional highways models for use in the assessment was undertaken by HS2 Ltd and its consultants in close collaboration with TfL and reviewed by TfL.
- 6.2.6 Through a series of meetings, discussions and technical review, the methodology for the London area outlined below was agreed as the most appropriate approach to modelling the construction and operational impacts of the Proposed Scheme within London for the TA.

## London modelling framework

### Approach

- 6.2.7 The impact of the Proposed Scheme through London, specifically but not only at Euston and Old Oak Common stations, was assessed through a combination of strategic and local modelling exercises, supplemented with data from other sources (most notably, the PLANET PFM Model, local transport authorities and HS2 Ltd's own data collection programme).
- 6.2.8 The purpose of all of the modelling and assessment work was to ensure that the impacts of the construction and operation of the Proposed Scheme were duly considered, inclusive of:
- providing substantive analysis for the TA;
  - establishing the likely impact and possible traffic and transport mitigation required;
  - supporting the EIA process including the provision of traffic data to inform other assessments;
  - informing the engineering design of the Proposed Scheme for both the construction and operational phases of the project; and
  - informing engagement with the planning authorities and other stakeholders throughout the development of and passage of the HS2 hybrid Bill.
- 6.2.9 The modelling and assessment work undertaken for the TA is robust because it:

- was undertaken respecting applicable guidance;
- used appropriate and suitably robust tools, taking the full variety of demand generation and responses into account as appropriate;
- was subject to appropriate quality assurance checks; and
- used an objective methodology to reach conclusions.

Where detailed modelling has been undertaken, it has used appropriately enhanced and updated versions of existing models, almost all of which are owned by affected stakeholders and used and/or updated and enhanced in cooperation with them.

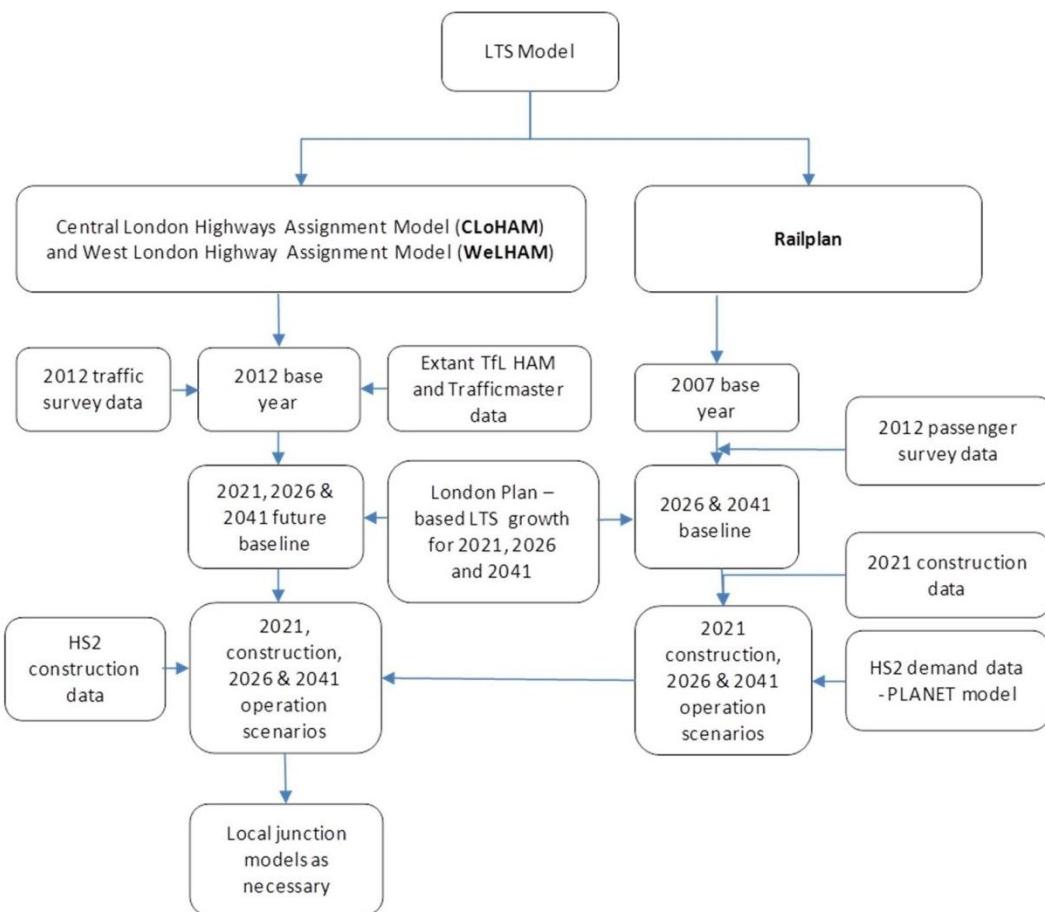
### *Framework*

6.2.10 An overview of the modelling framework for the London area is shown in Figure 6-1. It can be summarised as:

- strategic long distance rail demand modelling;
  - the PLANET Framework of Models (PFM), including PLANET Long Distance (PLD), PLANET Midland (PM), PLANET South (PS) and the PLANET Station Choice Model (SCM);
- regional multi-modal transport demand modelling;
  - the TfL London Transport Studies (LTS) model;
- strategic highway assignment modelling;
  - the TfL Central London Highway Assignment Model (CLoHAM) and West London Highway Assignment Model (WeLHAM);
- regional public transport modelling;
  - the TfL Railplan model; and
- local junction modelling as required.

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Figure 6-1: London area modelling framework



- 6.2.12 The modelling framework outlined is based on and builds upon TfL's suite of regional and sub-regional models.
- 6.2.13 LTS is a strategic multi-modal demand model for London and its surrounding area, providing forecasts, analysis and traffic data using a comprehensive database of travel patterns within the London area. LTS provides an independent and common structure for all parties and to provide a London-wide basis for major scheme appraisal.
- 6.2.14 The LTS model is a complete four-stage model system (i.e. generation, distribution, mode split and assignment) and is used for policy analysis, covering both strategic studies and evaluation frameworks, scheme evaluation for public transport and highway schemes and to provide data to other models. LTS provides the forecast year future baseline demand for TfL's Railplan and Highway Assignment Models (HAMS).
- 6.2.15 The LTS model has formed the starting point for a range of major schemes, plans and proposals in London. This includes the forecasts used to support the Crossrail Act, the GLA and TfL's London Plan, Transport Strategy and sub-regional strategy and plans.

- 6.2.16 The HAMs were developed by TfL to provide a consistent basis for assessing the highway impacts of land use and infrastructure proposals across London with models developed for central, west, north, east and south London. Following discussions in early summer 2012, it was agreed by HS2 Ltd and TfL that the Central London and West London Highway Assignment Models (CLoHAM and WeLHAM respectively) would provide the most appropriate basis for assessing the highway impacts of the construction and operational phases of the Proposed Scheme in London, with CLoHAM being primarily used to assess the construction and operational impacts around Euston station and Camden and WeLHAM for the remainder of the Proposed Scheme in London.
- 6.2.17 Regional Railplan is a strategic public transport assignment model now developed and managed by TfL and initially developed by London Transport in the early 1990s. The model contains the service patterns for public transport modes within the south east of England, with a focus on London and rail routes serving London during the modelled periods.
- 6.2.18 Historically, Railplan has been primarily used for the morning peak period (07:00-10:00) on an “average” Monday to Friday weekday in a neutral month. However, inter-peak and evening peak versions have also been developed although these are used less frequently. For the assessment of HS2, TfL and HS2 Ltd agreed that the AM peak period and PM peak period models should be used.
- 6.2.19 Railplan is calibrated to a 2007 base year and has future years of 2011, 2016, 2021, 2026 and 2031. A 2041 model was developed to model the Proposed Scheme based on extrapolations of 2031 population and employment forecasts in LTS. Public transport demand is derived from LTS with demand assigned to the optimal routes in the network, being a combination of rail, underground, light rail or bus usage, together with walk for shorter journeys as well as for interchange.
- 6.2.20 The PLANET suite of models has been developed by the DfT and has been refined in order to model the Proposed Scheme and provide input into the business case, ES and TA. The long distance rail movements in Railplan were replaced with long distance rail movements, including passengers using the Proposed Scheme, from PLANET.

- 6.2.21 PLANET runs were undertaken for 2026 and 2036. The 2026 and 2036 long distance rail data from PLANET was substituted directly into the Railplan models for 2026 and 2041 respectively. The passenger growth in long distance rail between 2036 and 2041 is therefore not included in the 2041 Railplan model runs. Extrapolating trend forecasts this would account for further growth of some 2% p.a. – total additional growth of approximately 10%. However, Railplan assumes that all rail passengers (specifically those arriving at Old Oak Common or Euston) would use public transport (bus, LU or rail services) or walk. This ignores car, taxi and cycle and consequently over estimates the impact of HS2 services as analysis indicates that at least 10% of HS2 passengers would use taxi or car and should in principle be deducted from the HS2 passengers forecast to transfer to public transport at Euston and Old Oak Common stations.
- 6.2.22 In the assessment of Euston and Old Oak Common station these additional car, taxi and cycle trips have been added without any reduction in the transfers to public transport. Hence two adjustments should in principle be made, one to increase demand to reflect growth between 2036 and 2041 and a second adjustment to reduce demand to account for non-public transport and walk access modes. Since these two impacts largely negate one another it was decided to make neither adjustment and treat the 2036 forecasts as forecasts for 2041. It should be noted that no adjustment has been made for car, taxi and cycle access in 2026 when there is no compensating adjustment for growth. To this extent the 2026 impacts are likely to be over-stated.
- 6.2.23 Neither PLANET, because it is a UK domestic model, nor Railplan, which is a London model, make allowance for international trips that might use HS1 to access Old Oak Common. There is the capability for up to 3 additional international services per hour to start at Old Oak Common, but the TA has assumed that there will be one HS1 train leaving and departing Old Oak Common every hour, each of which is full (i.e. 1,100 passengers). It is expected that approximately 50% of the passenger traffic on these HS1 services will arrive or depart Old Oak Common via HS2, with a further 40% interchanging with the wider rail network (Crossrail, Heathrow Express and the Great western Main Line). The balance of 10% arrives and departs Old Oak Common station using other station access modes in the same proportions assumed for HS2 passenger traffic and is overlaid on top of the core Railplan/PLANET forecasts.
- 6.2.24 Many of the international passengers are likely to already be within the overall modelled travel demand (using other access routes to HS1). Although in principle this would suggest that their addition at Old Oak Common station should be accompanied by reductions in demand elsewhere this would inevitably be an arbitrary process and, in any case, not substantially affect the impacts at Old Oak Common. Consequently the relief of pressure that could be felt at other stations, notably King's Cross and Paddington, has not been taken into account.

## Regional highway modelling

### *CLoHAM and WeLHAM SATURN highway modelling*

- 6.2.25 2009 versions of the CLoHAM and WeLHAM models were re-based, re-calibrated and re-validated to a November 2012 base including additional network detail around the Euston, Old Oak Common and Ruislip areas and other updates to improve the performance and robustness of the model. These improvements were carried forward to the 2021, 2026 and 2041 models. The models were substantially updated to a 2012 base and re-calibrated to this base year. As part of this, and as discussed further below, demand matrices were updated based on extensive new 2012 count data sourced by HS2 Ltd and TfL together with 2012 observed journey time data.
- 6.2.26 The modelled time periods for CLoHAM and WeLHAM were the weekday AM peak hour (08:00-09:00), inter-peak average hour of 10:00-16:00 and PM peak hour (17:00-18:00).
- 6.2.27 TfL's previous development of CLoHAM included it being refined during 2009 in terms of zoning and network and re-calibrated, but maintaining the original 2008 demand data; this is referred to as CLoHAM Production Version1. This version of CLoHAM included the Congestion Charging Western Extension Zone (WEZ). Following public consultation, the WEZ was removed in January 2011. Accordingly, TfL provided HS2 Ltd with a further base year version of CLoHAM with WEZ removed.
- 6.2.28 TfL provided two versions of the WeLHAM model, one for the original 2009 WeLHAM calibration and a further version containing refinements to facilitate modelling of the Old Oak Common Opportunity Area Planning Framework (OAPF). Whilst AM and PM peak hour models were provided for the OAPF update, no inter peak model was available. The model was re-calibrated by Hs2 Ltd with additional 2009 and 2012 traffic counts to increase the level of validation in the OOC area.
- 6.2.29 TfL also updated the 2009 WeLHAM Old Oak Common OAPF model and this was developed to include the Old Oak Common OAPF in the first half of 2013. A key model modification was the introduction of a finer zoning system in the Old Oak Common area to represent the potential OAPF developments in more detail.
- 6.2.30 Based on an initial assessment of the likely main traffic impacts of the Hs2 schemes and liaison with TfL, both CLoHAM and WeLHAM were updated by HS2 Ltd to reflect 2012 conditions. This used extensive new counts, journey time and other data provided by TfL and sourced by HS2 Ltd. For CLoHAM this represented a wholesale update of the model. Given the more restricted area of impact in other parts of London for WeLHAM the updates were more limited with local re-calibration of the 2009 WeLHAM OOC model focused on the following two local study areas of Old Oak Common (OOC) and West Ruislip.

- 6.2.31 The methodology and development of the validated 2012 base year highways models were agreed with TfL prior to their use in the future baseline models. The model performance reports for the re-based, re-calibrated and re-validated versions of the CLoHAM and WeLHAM models, describing the development and re-calibration and re-validation of the two models, are contained within Annex C.
- 6.2.32 The DMRB and DfT WebTAG (Transport Appraisal Guidance) guidance focuses on link flow validation and considers the actual difference between modelled and observed link flows with a differential target dependent on the level of flow on a link together with the GEH (Geoffrey Havers) statistic as a measure of the goodness of fit between modelled and observed flows. This guidance indicates a benchmark for the GEH statistic of 85% of modelled flows having a GEH statistic of less than 5.
- 6.2.33 A summary of the base year models' GEH link flow validation performance is given in Table 6-2. (model performance is reported in the CLoHAM and WeLHAM Model Performance Reports in Annex C). It indicates that the models achieve or almost achieve 85% in each time period and for each model and can be considered to provide a robust basis on which to assess the impacts of the Proposed Scheme in the Euston, Old Oak Common and West Ruislip areas.

Table 6-2: CLoHAM and WeLHAM local area link flow performance summary

DMRB GEH <5 guidance	AM peak hour (08:00-09:00)	Ave. inter peak hour (10:00-16:00)	PM peak hour (17:00-18:00)
CLoHAM	83%	85%	85%
Old Oak Common area	86%	N/A	80%
West Ruislip area	93%	N/A	100%

- 6.2.34 Future baseline vehicle matrices for 2021, 2026 and 2041 were created by TfL using the 2012 validated model and LTS-sourced London Plan -based demand growth. Consented highway schemes were included in the relevant future baseline scenarios.
- 6.2.35 Based on traffic growth derived from CLoHAM, peak hour traffic volumes to, from and within the Euston area are forecast to grow by around 2% by 2021, 4% by 2026 and 7% by 2041 compared to 2012. This has been derived from the demand growth between the 2012 validated model and the 2021, 2026 and 2041 demand provided by TfL.
- 6.2.36 For WeLHAM, the overall traffic growth in both peak periods is similar with AM peak hour traffic volumes forecast to grow by around 2.5%-3% by 2021, 4.5%-5.5% by 2026 and 8.5-9.5% by 2041.

- 6.2.37 Section 9.6 of TfL's Transport Assessment Best Practice guidance<sup>1</sup> states that: 'For traffic modelling, any roads operating over 85% saturation are generally considered to be suffering from congestion. Where development proposals increase the saturation significantly above this level, mitigating factors should be proposed and described, taking into account any existing plans to relieve congestion'.
- 6.2.38 Junctions and roads likely affected by the Proposed Scheme, as well as all roads and junctions that are proposed to be closed, temporarily diverted or built during construction or operation, are dealt with under the relevant CFA discussion. They were identified by:
- modelling all roads and junctions in the immediate vicinity of Euston and Old Oak Common stations and the Ruislip worksite and/or closed, temporarily diverted or proposed during construction or operation; and
  - identifying junction approach arms where the flow to capacity relationship for an approach arm, measured as the Volume Capacity (VoC) ratio:
    - is over 87% during the construction or operation of the Proposed Scheme and there is an increase of 2% or more
- 6.2.39 For the Euston and Camden areas (and as modelled in CLoHAM), three construction activity phases were assessed against the 2021 baseline traffic flows representing:
- 2017 in the construction programme;
  - 2019 in the construction programme; and
  - 2021 in the construction programme.
- 6.2.40 Although the three construction tests represent different years, they have all been modelled using 2021 background demands, as growth in background demand between the construction years is relatively minor.
- 6.2.41 For the areas to the west of the A5 Kilburn Road to the Colne Valley, mainly comprising CFA4, 5 and 6 (and interfacing with CFA7) two construction tests were undertaken:
- late 2017-early 2018, with substantial movement of excavated material underway but railheads at Willesden & Harvil Road not yet fully operational and Old Oak Common Lane (CFA4) still open; and
  - 2023/2024, with Old Oak Common Lane closed (CFA4) and the assumption for this assessment that railheads are still not yet operational although this is not expected to be the case since the railheads should be in place well before the road closure.

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<sup>1</sup> Transport for London (2010) Transport Assessment best practice guidance document

- 6.2.42 For each scenario, there will be different levels of construction traffic, together with different patterns of road interventions and associated traffic management.
- 6.2.43 Changes to the road layout and operation associated with the Proposed Scheme, together with increased demand from rail passengers using onwards modes of taxi and car pick-up/set-down, have been included in the relevant forecasts. Runs of both CLoHAM and WeLHAM have been undertaken for 2026 and 2041 to assess the highway impacts of the Proposed Scheme.

## **Regional Railplan public transport modelling**

### *Methodology*

- 6.2.44 Given crowding levels on the London transport network and the established and strategic nature (and validation) of Railplan, it is the most appropriate tool to assess public transport impacts of the Proposed Scheme within London. Railplan incorporates the full public transport network in London and surrounding areas, considers crowding and its effect on travel choices and is fully integrated with the LTS model. It has progressively been improved, particularly to improve the detailed representation of public transport and development
- 6.2.45 Railplan has for many years been the best practice standard model that is used to model major public transport interventions in London. This has included all new rail schemes such as Crossrail (and indeed Crossrail 2 and other schemes considered by TfL to be complementary to HS2).
- 6.2.46 The primary use of Railplan in this TA was to assess the impact of the scheme on the public transport network, particularly with respect to providing information on passenger flow changes, usage of other stations, crowding levels and onward travel. More specifically, the outputs of the public transport modelling have been used in the assessment to:
- provide arrival and departure flows on the conventional railway (i.e. not including HS2) and HS2 at Euston and Old Oak Common stations in order to estimate the scheme impacts at each station;
  - provide an indicator of station activity (all access, egress and interchange trips) at all stations but focusing particularly on fare Zone 1 stations, together with Camden Town, Mornington Crescent and Ealing Broadway;
  - estimate the impacts of the Proposed Scheme on the London-wide underground, rail and bus network in terms of flow changes on selected links/services around Euston and Old Oak Common stations; provide information on crowding impacts on a network-wide basis for National Rail and LU services;
  - provide detailed outputs on the change in crowding on a station-by station basis;

- around Euston on the Northern line Bank and Charing Cross branches, Victoria Line, Piccadilly line and Circle, Metropolitan Hammersmith & City lines;
- on Crossrail between Ealing Broadway and Farringdon;
- Provide details of local impacts on buses at Old Oak Common;
- inform the estimation of taxi and car pick up/set down demand for the strategic highway assessment; and
- provide outputs to support presentation of the results such as plots of flow changes on the wider London public transport network.

6.2.47 Details concerning the Railplan model's validation and compliance with modelling guidance are provided in the Railplan Modelling Performance Report in Annex C. Table 6-3 and Table 6-4 provide validation headline statistics that demonstrate Railplan's robustness.

Table 6-3: Euston station AM peak period passenger flow validation

		Observed	Modelled	% difference
Station interchange				
To/from		45,112	41,459	-8%
Link flows				
NR		21,162	21,424	1%
Underground	North of Euston	Northbound	31,812	36,068
		Southbound	94,436	99,346
	South of Euston	Northbound	36,972	42,278
		Southbound	98,682	108,735

Table 6-4: Euston station PM peak period passenger flow validation

		Observed	Modelled	% difference
Station interchange				
To/from		52,781	40,830	-23%
Link flows				
NR		20,831	20,222	-3%
Underground	North of Euston	Northbound	80,166	91,086
		Southbound	46,057	56,691
	South of Euston	Northbound	88,340	98,127
		Southbound	51,743	62,120

- 6.2.48 This (and Annex C) indicates that both the 2007 AM and PM peak period base models provide a reasonably robust basis for the assessing the Proposed Scheme within London, especially given the scale and complexity of the model. The PM model validates slightly less well, mainly because of contra-peak direction modelling. However, against WebTAG guidance these meet guidance levels of performance.
- 6.2.49 For future year forecasts, all long distance rail trips in Railplan including those on both conventional rail and HS2, either starting or finishing beyond a line drawn between the Severn and the Wash estuaries were replaced with trips from PLANET. This is a major element in the arriving and departing passenger flows at Euston and Old Oak Common stations.
- 6.2.50 PLANET is a daily model and Railplan models the three hour morning and afternoon peak periods. Consequently, daily PLANET HS2 demands have been converted to the peak periods. Factors generated by HS2 Ltd based on detailed National Rail data on time-of-day flows indicated that 2026 Phase One AM peak inbound and outbound HS2 demands comprise 29% and 22% of the daily inbound and outbound demands respectively. In 2036 Phase Two the proportions change to 27% and 22% for inbound and outbound respectively. 2026 Phase One PM peak inbound and outbound HS2 demands are 21% and 31% of the daily inbound and outbound demands. In 2036 Phase Two the proportions change to 21% and 30% for inbound and outbound respectively.

## Crowding

- 6.2.51 For the purposes of this analysis, four passengers per square metre (PPSM) can be considered as a proxy for practical capacity. Above this level, passengers will experience difficulties in boarding services resulting in uncomfortable travelling conditions and potential delays. However, it is important to note that this is a theoretical approach and responses such as peak spreading will serve to mitigate against very high crowding levels actually being achieved. In addition, crowding levels above this level already routinely occur during peak hours and are forecast to continue to worsen into the future.

6.2.52 Crowding is implemented in Railplan in the following way:

- as seated and standing capacity becomes occupied on each leg of each service, a time penalty is progressively applied as a factor to the actual journey time, resulting in the journey times on that leg of that services being perceived as slower;
- as a result, passengers on higher-loaded, higher-penalised services will re-route to lesser penalised routes where possible;
- where no further re-routing is possible, passengers will be forced to accept the level of crowding penalty; and
- no trips are suppressed due to crowding.

## Modelling of construction

- 6.2.53 It had initially not been expected that there would be a need for public transport modelling of construction impacts. However, during the development of the Proposed Scheme at Euston station, it became evident that the construction of the new escalators and lifts down to the Underground station platforms would require some closures of the Underground platforms as follows:
- on the Victoria line and the Bank branch of the Northern line, northbound platforms will need to close for a five-month period in early to mid-2022;
  - the southbound Northern line (Bank branch) platform will need to close for a three-month period from late 2021 and early 2022; and
  - on the Charing Cross branch of the Northern line, simultaneous northbound and southbound platform closures will be required for a three-month period in early 2023.

- 6.2.54 HS2 Ltd's consultants for Euston used Railplan to test the impacts of these potential platform closures based on a run of the 2026 do-minimum scenario and testing each of the three closures.

*Post model processing to account for car, taxi and cycle as onward or access modes*

- 6.2.55 Railplan incorporates supply-side (network) details for rail, underground, bus and walk and, as such, assumes all demand arriving or departing Euston and Old Oak Common stations will use one of these modes for their onward or access journeys. However, car, taxi and cycle are also important arrival and departure modes, particularly in the case of long distance rail travel. Their importance is likely to increase with the Proposed Scheme. In order to account for them, available survey data indicating arrival and departure modes was investigated.

- 6.2.56 Using this data, onward car, taxi and cycle mode shares for arriving and departing rail passengers were estimated at both stations. It is important to note, as discussed above, that whilst this demand will effectively reduce the demands travelling by underground, bus and walk, the Railplan demand was not adjusted downwards, reflecting a robust case for the assessment of these modes for all except 2041 with HS2 forecasts where an underestimate in long distance rail demand from north of a broad line across England just south of Northampton (due to the use of 2036 HS2 demands, which are approximately 10% lower than expected 2041 demands) partially offsets any discrepancy, particularly at Euston station. The offset at Old Oak Common is less pronounced because HS2 demands comprise a smaller proportion of the total rail demand entering, exiting or interchanging there.

- 6.2.57 Car, taxi and cycle mode shares at Euston and Old Oak Common are 10% or more in magnitude, while long distance rail demand growth from 2036 to 2041 is expected to approximately 2% p.a. Superficially these two factors are closely matched but because HS2 demand only comprises a portion of the total rail traffic at Euston and Old Oak Common stations this represents a robust approach (demand is effectively increased by just over 10% by adding rather than netting off car, taxi and cycle access trips while only growth in long distance demand from the Midlands and north would need to be uplifted by 10%).

### **Local assessment - junction modelling**

- 6.2.58 Outputs from the CLoHAM and WeLHAM models were used to identify those junctions that were to be assessed further through local road network modelling. The approach followed has already been outlined above.
- 6.2.59 It was agreed with TfL that at this stage of the development of the Proposed Scheme it would generally not be necessary or appropriate to undertake very detailed local modelling of every intervention. However where such modelling was required it was agreed that the TA should use industry standard software packages including TRANSYT, LINSIG, PICADY and ARCADY
- 6.2.60 More specifically, it was agreed with TfL that TRANSYT analysis was generally acceptable at this stage in the planning process to give an indication of the relative performance of the highway network. Although it was agreed that more detailed analysis using micro-simulation was not necessary for hybrid Bill TA purposes, VISSIM-based micro-simulation was used to inform Euston bus station layout designs.
- 6.2.61 TRANSYT area modelling was used in the Euston station area assessment and was also used in supporting the assessment of the impact of the Old Oak Common station. Model Performance Reports for both the Euston and Old Oak Common TRANSYT models are included in Annex C.
- 6.2.62 For both Euston and Old Oak Common, the 2012 baseline local modelling was developed using the 2012 survey data and validated against flows and, where available, queue data collected as part of the 2012 traffic surveys.
- 6.2.63 For all future scenarios, the local model traffic flows were derived by adding the difference between the baseline and future year CLoHAM or WeLHAM flows to the 2012 calibrated models. Where surveyed traffic flows were not available, CLoHAM and WeLHAM data was used directly in the models.
- 6.2.64 Detailed discussion of the local modelling is included as appropriate in relevant CFA area sub-sections.

## 6.3 Proposed Scheme description and future baseline assessment for CFA1, CFA2 and CFA3

### Euston - Station and Approach (CFA 1) Proposed Scheme description

#### *Overview*

- 6.3.2 Euston station will become the southern terminus for the Proposed Scheme. The existing Euston station will be reconfigured and enlarged to accommodate high speed train services alongside the existing WCML and other conventional and local rail services. The combined station will become the centrepiece and catalyst for the regeneration and development of the Euston area.
- 6.3.3 Much of the existing station will be retained and remodelled. A concourse and platforms for the high speed train services will replace the western part of the existing station, while also extending further west than the existing station. The high speed and conventional rail platforms will operate as one combined space, as shown in Map CT-06-001. The Proposed Scheme will also involve improvements to Euston underground station as well as Euston Square underground station.
- 6.3.4 The provision of platforms for high speed trains will require widening of the existing railway cutting to the north of Euston station to the west of the existing tracks. The high speed railway will enter a tunnel at the Euston portal, approximately 100m south of Parkway. The portal will be close to the existing conventional railway Park Street Tunnels.
- 6.3.5 The high speed tracks will enter the proposed twin-bore tunnels at a deeper level than the existing railway, requiring the reconstruction of retaining walls on the western side of the cutting. All three of the existing bridges on the Euston station approach will be demolished and rebuilt between Euston station and Parkway. These bridges are:
- A400 Hampstead Road overbridge;
  - Granby Terrace overbridge; and
  - Mornington Street overbridge.
- 6.3.6 The Network Rail conventional railway will remain on, or close, to its current alignment and levels, but two approach lines will be removed requiring rearrangement of signalling and overhead line equipment.

#### *Euston station*

- 6.3.7 The key features of the functional design and layout of the Proposed Scheme at Euston are shown on Figure 2, Volume 2 (CFA report 1) and Map CT-06-001. These include:

- creation of eleven new high speed platforms 415m long and below street level, with a new concourse at street level to accommodate high speed services. This will involve the demolition of the existing station west of the existing platform 15;
- removal of the existing conventional platforms 9, 10, 16, 17 and 18, retention of the remaining 13 platforms including extensions of platform 8 and 11, and remodelling of the associated station structure;
- substantial reconstruction and refitting of the existing station concourse, which will be linked with the new high speed concourse to the west;
- a new northern entrance to the station on A400 Hampstead Road and improved street level entrances from Euston Square Gardens and A4200 Eversholt Street;
- creation of new ticket sales and retail units on the extended concourse. The retail units will vary in size and will include customer support facilities, cafes, restaurants and shops to serve passengers and the local community;
- new escalators and lifts will be provided between the high speed part of the concourse and the high speed platforms. Access to the conventional platforms will be improved to cater for an increased number of passengers including direct subsurface exits to the LU station;
- the current Euston LU station ticket hall will be extended and remodelled to accommodate increased passenger flows. This will include the provision of new escalators serving both the branches of the Northern line and the Victoria line;
- new entrances to the LU station will be provided from the station forecourt, to the north of Euston Square Gardens, and a pedestrian subway will be built beneath A501 Euston Road, with an additional entrance and ticket hall for Euston Square LU station on Gordon Street;
- facilities for step-free and fire brigade access to the concourse and all platforms will be provided; and
- the existing station retail units use a service basement under the station that will have limited capacity following the redevelopment of the station. Retail and train servicing will be provided from an improved service area on the service deck, above the northern part of the existing station. Vehicles will access this via a new service entrance from A4200 Eversholt Street.

6.3.8 There will be opportunities for public realm improvements and reinstatement, including the main entrance forecourt, the bus station and Euston Square Gardens, and a landscaped forecourt to the northern entrance, incorporating part of the existing St James's Gardens.

6.3.9 Key changes and improvements to surface access will include:

- a new East West overbridge across the railway north of the station from A4200

Eversholt Street to A400 Hampstead Road. This will be a pedestrian and cycle bridge;

- a dedicated access for service vehicles to the service deck from A4200 Eversholt Street;
- Cobourg Street will be realigned and extended north to A400 Hampstead Road, and will include a segregated cycle track. There will be a pedestrian priority area, which will provide a cycle link via the southern end of Melton Street to A501 Euston Road;
- the northern end of Gordon Street, which will be closed to vehicles retaining pedestrian and cycle connections;
- the bus station, which will remain south of the station and north of A501 Euston Square Gardens, will be reconfigured to occupy the full east-west width of gardens. The existing access for eastbound buses from A501 Euston Road will be closed and moved to Melton Street.
- most of the public parking, car hire facilities and care hire pick up/drop off in the existing station will be removed. Disabled parking bays will be provided close to the station entrance;
- improved cycle parking for commuters will be provided, with up to 2,000 spaces at locations around the station;
- additional Barclays Cycle Hire docking stations may be provided, dispersed in streets around the station. Approximately 200 additional Barclays Cycle Hire spaces are proposed;
- improved cycle routes on roads around the station; and
- provision for taxis and private cars to drop off in A4200 Eversholt Street and at the northern entrance in Cobourg Street, and pick up at the southern end of Cobourg Street.

### *Station operation*

6.3.10

The high-speed and conventional parts of the station will operate as one entity. The main concourse will be extended to provide sufficient space for passengers on planned HS2 and conventional services and for other users with appropriate links to platform level and the underground stations. It will extend across the whole southern part of the station to include the existing conventional concourse and will include a mall that leads north to the new northern entrance. The concourse will be at the level of the existing Cobourg Street. It will have waiting areas and lounges, passenger information and ticketing facilities, retail outlets, cafes and restaurants and public conveniences. Access to the concourse will not require a ticket.

- 6.3.11 Access to and from high-speed trains and platforms will be via access bridges, with banks of escalators and lifts at the north and south ends of the platforms. Passengers on high speed trains will arrive at low level and could either remain at the same level in order to directly access the underground station or take escalators up to the concourse at street level. From the concourse there will be pedestrian routes down to Euston underground station, to the bus station at the front of the station and to a taxi rank on Cobourg Street. The permeable edges to the station will ensure it can be accessed, step free, from the surrounding area and will encourage pedestrian use, particularly along Drummond Street, Cobourg Street and A4200 Eversholt Street.
- 6.3.12 Access between conventional platforms and Euston LU station will be via direct routes from platforms using an upgraded existing concourse basement route.
- 6.3.13 The main station concourse will have a direct connection to the LU station ticket hall. Access to the LU station from outside the train station will be possible from the station forecourt without entering the station concourse. The A501 Euston Road subway will provide a direct sub-surface link to a new entrance for Euston Square LU station on Gordon Street. The Euston Square LU station connection will link the eastern ends of the Euston Square underground station platforms with the Euston Road subway and Euston LU ticket hall.
- 6.3.14 There will be two emergency access entrances to the Euston LU station, one in Euston Square Gardens and the other at the southern end of Cobourg Street.

### *Station approach*

- 6.3.15 This section describes the station approach, between A400 Hampstead Road overbridge and A4201 Parkway, where the high speed railway will enter a tunnel.
- 6.3.16 Key transport features of the design of this area include:
- A400 Hampstead Road overbridge, which currently carries a six-lane road, will be demolished and rebuilt on its current horizontal alignment. The carriageway level of the replacement bridge will be up to 3.9m higher than at present, to allow for longer bridge spans and sufficient clearance for high speed trains to pass underneath;
  - Granby Terrace overbridge, which will be demolished and rebuilt on a slightly altered alignment; and
  - Mornington Street overbridge, which will be demolished and rebuilt in its current position reinstating the listed elements of the structure.

## *Highway network*

- 6.3.17 The Proposed Scheme introduces several sections of new, diverted, and modified highway. The highway layout for the Proposed Scheme is shown on Map CT-06-01 (Volume 2, Map Book 1). The final highway scheme is anticipated to consist of predominantly 20mph local roads such as Granby Terrace, Eversholt Street, Mornington Street, and Cobourg Street. The main distributor roads, namely A400 Hampstead Road and A501 Euston Road, are proposed to remain at a speed limit of 30mph.
- 6.3.18 On A501 Euston Road, a new junction will be created with the new Euston bus station in a location similar to that of the existing junction of A501 Euston Road with Gordon Street and Melton Street. This new signalised junction will allow buses to enter from and exit the bus station on A501 Euston Road. For buses arriving from the east along A501 Euston Road, a right turn bus lane will be provided. This will mean that the number of lanes for 'ahead' movements on A501 Euston Road will be reduced to two (when compared to the existing three). While Gordon Street will be closed to vehicular traffic, a cycle link to A501 Euston Road will be provided. The new signal configuration will allow for this movement of cyclists. A new signalised crossing on A501 Euston Road on the western side of the junction will also be provided.
- 6.3.19 The existing access to the bus station from A501 Euston Road will be closed. The pedestrian crossing on A501 Euston Road will, however, remain in operation.
- 6.3.20 On A4200 Eversholt Street, a new junction will be created at the new northern bus standing and servicing area. The bus standing and servicing area will have separate entry and exit points from A4200 Eversholt Street. The entrance, located just south of Polygon Road, will require vehicles travelling north to turn left while vehicles travelling south will have to turn right when entering the bus standing and servicing area. Vehicles exiting the bus standing and servicing area will do so via a priority junction with A4200 Eversholt Street. The operation of this junction will be important in terms of the overall operation of A4200 Eversholt Street and Polygon Road and has been considered as part of the local highway assessment.
- 6.3.21 On A400 Hampstead Road, a new signalised junction will be created between A400 Hampstead Road, Cobourg Street and Robert Street. As for the existing junction, only left turning movements will be permitted from Robert Street. All movements into Robert Street are permitted as are all movements out of Cobourg Street. Signalised pedestrian crossings will be provided on the Cobourg Street and Robert Street arms of this junction. On A400 Hampstead Road, two lanes will be provided in each direction while three lanes, two left turn lanes and one ahead/right lane, will be provided on Cobourg Street.

- 6.3.22 Approximately 40m north of the junction of A400 Hampstead Road with Cobourg Street and Robert Street, a second new signalised junction is proposed. This will allow access from A400 Hampstead Road (from both the north and south directions) to the passenger set-down area by taxi and private car. A signalised pedestrian crossing will also be provided on the A400 Hampstead Road northern arm of this junction.
- 6.3.23 Due to the realignment of the Granby Terrace overbridge, a new signalised junction with A400 Hampstead Road will be formed. This junction will also include A400 Lidlington Place. Two lanes will be provided on the Granby Terrace approach to the junction, with both allowing left turning movements and right turning permitted from the right lane only. Two lanes will be provided on A400 Hampstead Road in the southbound direction, with three, including a bus lane, provided in the northbound direction.
- 6.3.24 A400 Lidlington Place will remain on its existing alignment with the same number of lanes provided. However, a signalised pedestrian crossing will be provided on the merging lane where traffic travels north from A400 Lidlington Place to A400 Hampstead Road. A signalised pedestrian crossing will also be provided on A400 Hampstead Road just north of Granby Terrace.

### *Public realm*

- 6.3.25 Euston Square Gardens will benefit from moving the bus access to Melton Street. Pedestrian routes through the gardens will also be provided. The bus station will be amended to form a linear bus street between Melton Street and Eversholt Street. It will remain north of the gardens.
- 6.3.26 The remaining part of St James's Gardens will be reinstated as public open space and will be about 40m from the northern entrance.

### **Camden and HS1 Link (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) Proposed Scheme description**

- 6.3.27 CFA2 (Camden Town and HS1 Link) is bounded to the south by the Euston - Station and Approach (CFA1), the boundary roads being Delancy Street, Pratt Street and St Pancras Way. To the east CFA2 is bounded by the A5200 York Way. To the west is CFA 3, Primrose Hill to Kilburn (Camden), the boundary being the West Coast Main Line to Regent's Park Road, then Hartland Road and the Overground lines to Kentish Town West station. The location is shown in Figure 2, Volume 2, (CFA report 2) and Figure 2, Volume 2 (CFA report 3).

- 6.3.28 Within the Camden and HS1 Link Area, the Proposed Scheme is approximately 2.3km in length and will run on refurbished viaducts that serve the existing North London Line (NLL)<sup>2</sup>. The two existing Network Rail (NR) tracks will be realigned to allow HS2 services to pass through this viaduct and two new NR tracks will be installed to the north side of the NLL for use by NLL services.
- 6.3.29 CFA3 (Primrose Hill to Kilburn) is again bounded to the south by CFA1, the boundary roads being Prince Albert Road and smaller roads through the St John's Wood area. It is bounded to the west by the A5 Kilburn High Road, beyond which is CFA4 (Kilburn (Brent) to Old Oak Common).
- 6.3.30 In CFA3 the Proposed Scheme comprises a 3.6km section of the Euston tunnel and a 2.7km section of the HS1-HS2 Link tunnel. The route of these tunnels passes to the west of Camden Town, to the north of Primrose Hill and south of Swiss Cottage.
- 6.3.31 The Proposed Scheme through these CFAs will commence to the east of York Way (A5200), just to the east of the boundary between the London Boroughs of Camden and Islington, for the HS1-HS2 Link. Works in Islington will be restricted to minor changes to an existing 50m length of track to create a link with HS1 to the east of York Way. The route of the HS1-HS2 Link will proceed westward, on an existing viaduct to join the existing North London Line (NLL)<sup>3</sup> west of Camley Street.
- 6.3.32 The HS1-HS2 Link then utilises the alignment of an existing track on the south side of the NLL viaduct, passing westwards to Camden Road Station. Continuing along the existing viaduct in a westerly direction toward Primrose Hill, the route will pass through the Camden Market area and over the access road from Chalk Farm Road to Morrisons supermarket and pass to the north of Juniper Crescent.
- 6.3.33 The existing bridges and viaducts along the route in this section of the Proposed Scheme will require partial demolition, bridge deck replacement or modification as part of the construction works. These viaducts and bridges currently serve existing London Overground (North London Line or NLL) and freight services.

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<sup>2</sup> This is an important freight route and is used by the Richmond to Stratford service of the London Overground, as part of the National Rail network.

<sup>3</sup> Part of the London Overground network.

- 6.3.34 Construction of this section of the Proposed Scheme will involve the reinstatement of two disused railway tracks on the north side of the NLL between York Way and Kentish Town Road, bringing back into use the two closed platforms on the north side of Camden Road Station. These reinstated platforms will be used by NLL services. Widening of the existing viaduct between Kentish Town Road and Castlehaven Road will also be undertaken. Platform 1 of Camden Road Station will be closed to the public as this new southerly track will be used by non-stopping HS1-HS2 Link trains.
- 6.3.35 North of Juniper Crescent, to the east of Regent's Park Road Bridge<sup>4</sup>, the HS1-HS2 Link will enter a tunnel via a ramp constructed between the Morrisons supermarket access road bridge and a point approximately 30m east of Regent's Park Road Bridge. The Proposed Scheme will consequently enter CFA3 in a single bore tunnel.
- 6.3.36 Within CFA3 the HS1-HS2 Link Tunnel will be joined by the Euston Tunnels, two tunnels arriving from Euston Station to the south which will pass either side of and parallel to the HS1-HS2 Link Tunnel. Two intervention and ventilation shafts are proposed, at the B509 Adelaide Road, just east of the junction with Primrose Hill Road, and at Alexandra Place, located immediately west of Loudoun Road. The route will leave the area to the west in tunnel at the A5 Kilburn High Road.

### **Euston – Station and Approach, Camden and HS 1 Link and Primrose Hill to Kilburn future baseline**

#### *Key future baseline transport issues*

- 6.3.37 Transport conditions for the future baseline have been considered for the assessment years of 2021 (highways only), 2026 and 2041. The main issues include:
- increase in traffic demand on the local highway network leading to a reduction in capacity at some junctions in the 2026 and 2041 future baseline scenarios;
  - reduction in capacity at the Euston station interchange facilities due to the forecast growth in the 2026 and 2041 future baseline scenarios;
  - increase in crowding on the southbound Victoria line and Northern line back branch to over 4 passengers per square metre in the 2041 future baseline scenario;
  - reduction in the level of comfort experienced by pedestrians at some pedestrian crossings in the vicinity of Euston station in the 2026 and 2041 future baseline scenarios; and
  - reduction in the level of comfort experienced by pedestrian at some footways in the vicinity of Euston station in the 2026 and 2041 future baseline scenarios.

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<sup>4</sup> This bridge is a road bridge which is closed to road traffic but open to pedestrians. It is the only road bridge over the railway in this part of the Proposed Scheme. The remaining bridges referred to are all railway bridges over roads.

- 6.3.38 As there are no equestrian facilities, air transport facilities or canals/waterways affected by the Proposed Scheme within this CFA, these topics are discussed no further within this report.

### *Land use assumptions*

- 6.3.39 In addition to the general background growth in the area, the future year baseline assessment includes traffic forecast to be generated by committed developments. The land use assumptions used in deriving the additional demand generated in the vicinity of Euston station are those contained within the London Transportation Studies (LTS) model as provided by Transport for London (TfL). These land use assumptions correspond to the available planning horizons and the Mayor's London Plan.

### *Transport supply assumptions*

#### Rail and underground network

- 6.3.40 The future baseline rail and underground networks generally only contain committed changes to infrastructure and services. These have been represented in the Railplan network.
- 6.3.41 Table 6-5 shows the main assumptions contained within the LTS model for a number of future years. Future travel demand for London is generally based on London Plan 2010 development with TEMPRO forecasts used outside London. As GLA population and employment forecasts are not available beyond 2031, it was assumed that the zonal growth forecast between 2021 and 2031 would be repeated between 2031 and 2041.

Table 6-5: LTS assumptions

	2021	2026	2031	2041
GLA population	London Plan 2010			
GLA employment				
Non-GLA demographics	TEMPRO - Version 6.2			
Congestion charges, tolls, parking charges	Increase in line with GDP (WebTAG Unit 3.5.6, Oct 2012)			
VOT, fuel prices, GDP	WebTAG Unit 3.5.6D (October 2012)			
Fares	RPI + 1% 2011 to 2036			
Rail demand (Rest UK)	GDP uplift with PDFH elasticity (+101% by 2041)			

- 6.3.42 Table 6-6 and Table 6-7 show the modelled rail and underground network changes between the 2007 and 2026 scenarios that are in LTS. Crossrail is one of the major new schemes that have been included in the future year networks.

Table 6-6: LTS Network Changes (2026) - Network Rail

<b>Network Rail</b>
South central - new station: Mitcham Eastfields (south London)
Eurostar - Eurostar International services to St Pancras
HS1 domestic services and associated Southeastern changes (IKF)
Heathrow - Heathrow Terminal 5 (Express / Connect)
Overground - London Overground SLC3 - North London Line (including Gospel Oak to Barking and the West London Line)
Overground - London Overground SLC3 - East London Line (excluding Clapham Junction)
Overground - London Overground SLC2 - 4c378 on Watford Services
Overground - London Overground SLC3 - East London Line Phase 2b to Clapham Junction
Overground stock replaced by 5 car class 378
Southern West London Line services partially upgraded to 8 car class 377
Great Eastern - HLOS1 - Great Eastern services
West Anglia - HLOS1 - West Anglia services
King's Cross suburban services (HLOS1)
King's Cross suburban services (Thameslink KO2)
Thameslink - through services (KO1 2011, KO1.1 2016, KO2 Dec 2018)
Moorgate GN suburban services (HLOS 2011, Thameslink KO2 Dec 2018)
West Coast Virgin high frequency services
West Coast Pendolino lengthening (35x11car, 21x9car)
London Midland Project 110 (Dec 2014 Timetable)
East Coast - 2tph Leeds services all day
East Coast timetable recast (Eureka)
Paddington GWML suburban electrification
Paddington GWML electrification to Bristol and South Wales
East Midlands 5tph from St Pancras including Corby
South West Trains - Southampton/Poole/Weymouth services
HLOS1 - South West Trains services
West Coast (VHF) London Midland services
Evergreen 3 Phase 1
Evergreen 3 Phase 2
Chiltern Speed adjustment (Metropolitan)
Blackfriars services (Thameslink KO2 2009, KO2 2018)
Cannon St services (IKF 2009, Thameslink KO2 2018)

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**Network Rail**

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Charing Cross services (IKF 2009, Thameslink KO2 2018)

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Victoria (SE) services (IKF 2009, Thameslink KO2 2018)

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Southeastern other (EO) Services (IKF 2009)

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London Bridge services (ELL 2011, Thameslink KO1 2011, KO2 2018)

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Victoria (SC) services (BML RUS 2008, ELL 2011, Thameslink KO1 2011, HLOS 2016)

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Southern other (EO) services (2011)

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Crossrail 1 (Abbey Wood / Shenfield - Heathrow / Maidenhead)

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General timetable refinements, as advised by DfT for 2019/2024, for ECML, GWML, WCML, MML, together with IEP replacing IC225 and IC125 services on ECML.

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Table 6-7: LTS Network Changes (2026) - London Underground / DLR

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**London Underground / DLR**

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Jubilee - PPP Upgrade including 7th car

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Victoria - PPP Upgrade - new trains

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Victoria - PPP Upgrade - signalling upgrades

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Northern - PPP Upgrade - phase 2 (revised service patterns) with 30/33 tph rather than 28/32 tph

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Piccadilly - Heathrow T5 served

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Piccadilly - PPP Upgrade including new trains and 33 tph rather than 30 tph

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Metropolitan - Full service post PPP upgrade

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Metropolitan - Extension, via Croxley Rail Link, to Watford Junction

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Hammersmith & City / Circle Lines - Full service post PPP upgrade

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District - PPP Upgrade - new trains

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District - Signalling upgrades / full service

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DLR - Woolwich Arsenal extension

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DLR - Stratford International - Canning Town

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DLR - 2016 Specification

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- 6.3.43 The number of modelled conventional rail services at Euston station for the 2026 and 2041 future baselines are shown in Table 6-8 and Table 6-9 for the AM and PM peak periods respectively.

Table 6-8: Railplan conventional rail Services for 2026 and 2041 future baselines AM peak period (07:00-10:00), inbound and outbound

Scenario	Suburban	Long Distance	Total Rail Services
Inbound	41	31	72

Scenario	Suburban	Long Distance	Total Rail Services
Outbound	32	29	61

Table 6-9: Railplan conventional rail Services for 2026 and 2041 future baselines Pm peak period (16:00 - 19:00), inbound and outbound

Scenario	Suburban	Long Distance	Total Rail Services
Inbound	31	32	63
Outbound	39	35	74

### Bus network

6.3.44 The future baseline includes changes the configuration of the junction of Euston Road with Hampstead Road and Tottenham Road (Euston Circus), where proposed scheme provides a new westbound contraflow bus lane. As part of this scheme, a new westbound bus stop on Euston Road, adjacent to University College London Hospital, will be provided. Westbound bus routes 18, 30 & 205 will use this new facility. The parallel Grafton Way will no longer be served by buses.

6.3.45 No further assumptions have been made with regards to bus service routing. In terms of frequency, Table 6-10 shows the modelled frequency changes between the 2007 and 2026 scenarios that are in LTS.

Table 6-10: LTS network changes - bus

Bus
3% global increase in bus frequency over 2007
East London Transit Phase 1a
East London Transit Phase 1b

### Cycle network

6.3.46 No further changes have been assumed with regards to the future baseline cycle network or provision of cycle facilities other than the Euston Circus scheme which provides a new westbound contraflow bus and cycle lane on Euston Road adjacent to University College London Hospital. This complements the existing off-carriageway cycle track.

### Pedestrian network

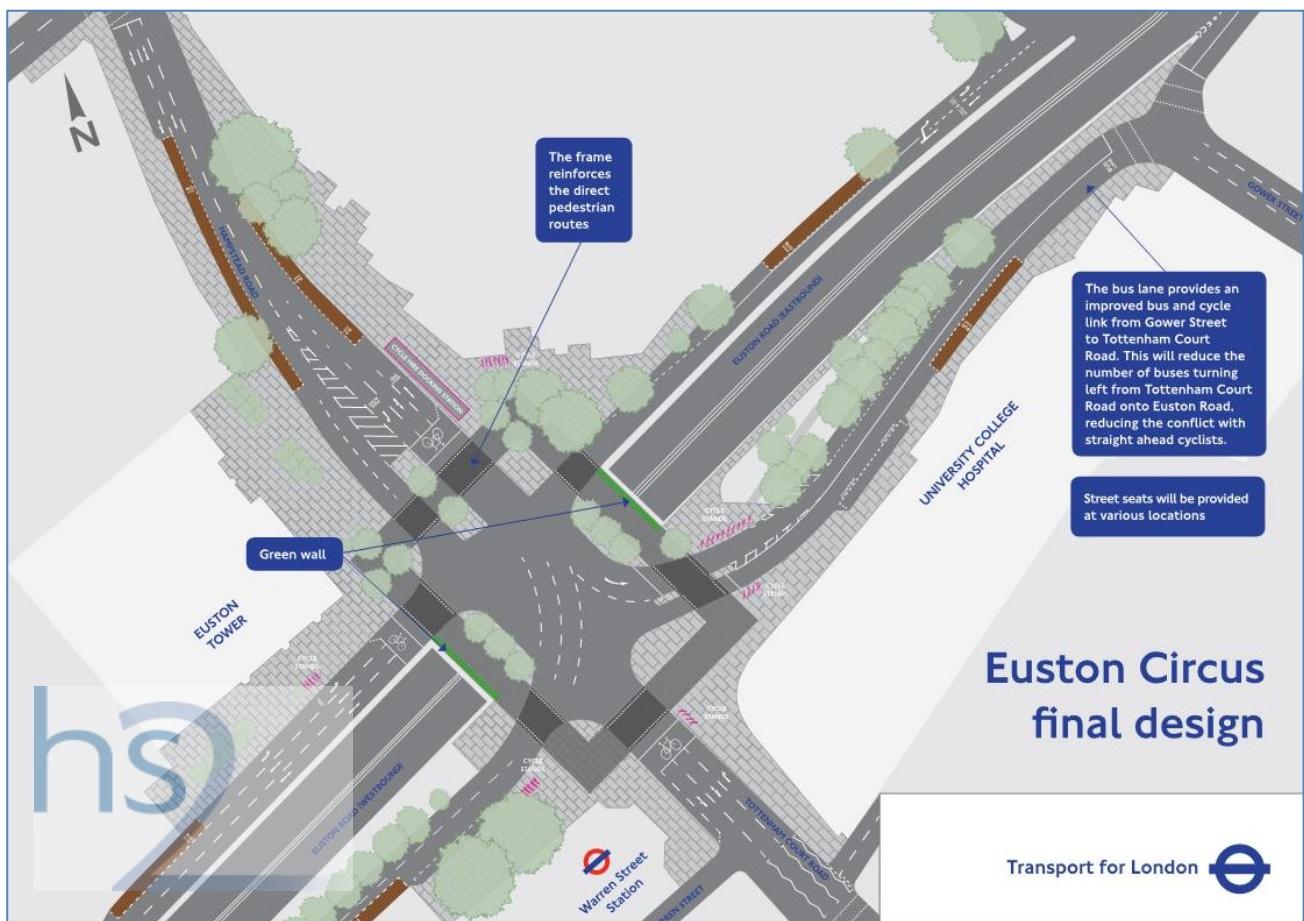
6.3.47 The new Euston Circus layout will enhance the pedestrian realm around the junction. Additional pedestrian space will be provided on the approaches to the junction. Signalised pedestrian crossings will also be provided on across all approach (entry) and exit arms at the junction. The removal of the existing internal junction stoplines also removes the internal pedestrian crossings which will simplify movement across the junction for pedestrians.

6.3.48 No further changes have been assumed with regards to the future baseline pedestrian network or provision of pedestrian facilities.

## Highway network

- 6.3.49 Whilst the majority of the highway network in the vicinity of Euston station is the same for the future baseline the following changes to the highway network have been noted since the traffic surveys were undertaken to inform the 2012 baseline assessment.
- 6.3.50 The re-configuration of Euston Circus, has been accounted for in all future baseline scenarios. The new junction layout can be seen in Figure 6-2.

Figure 6-2: Euston Circus layout



- 6.3.51 The main changes to this junction in the future baseline scenarios are:
- the left-turn movement from Hampstead Road onto the Euston Road eastbound on-slip has been banned;
  - a contra-flow bus and cycle lane has been provided on the link between Euston Circus and Gower Street (this was formerly a one-way eastbound link); and
  - all stoplines internal to the junction and hence all pedestrian crossings within the junction have been removed.
- 6.3.52 The new junction layout has been reflected in all future baseline modelling, both strategic and local.

- 6.3.53 Outside of the immediate vicinity of Euston station, the junction of Camden High Street with Kentish Town Road, Camden Road, Parkway and Greenland Road, known as Britannia Junction has also been reconfigured.
- 6.3.54 The key changes to this junction in the future baseline scenarios are:
- reduction from three lanes to two lane on the Parkway approach to the junction;
  - introduction of advanced stops lines (ASL) for cyclists on the Camden High Street northbound approach to the junction and the Parkway approach to the junction;
  - removal of the central reservation in the centre of the junction; and
  - widening of the footways outside Camden Town London Underground station (between Camden High Street and Kentish Town Road) and on the north side of the junction between Parkway and Camden High Street.

- 6.3.55 The new junction layout has been reflected in all future baseline strategic modelling scenarios.

### Taxi facilities

- 6.3.56 Although background growth in taxi demand is included in the future baselines, it is assumed that there will be no changes to the taxi facilities in the area between 2012 and the 2026 and 2041 future baseline scenarios.

### Parking and loading

- 6.3.57 It is assumed that there will be no changes to the parking and loading facilities in the area between 2012 and the 2026 and 2041 future baseline scenarios.

### *Transport demand assumptions*

#### Rail and underground network

- 6.3.58 Growth in future baseline passenger numbers has been derived from TfL's Railplan model for 2026 and 2041, which assumes London Plan growth and includes long distance rail demand from the Department for Transport's (DfT) PLANET model. No Railplan forecasts were required for 2021. Future baseline public transport flows for 2026 arriving at Euston by rail in the AM peak (07:00-10:00) period are forecast to increase by 19% as shown in Table 6-11 compared to 2012. In the PM peak (16:00-19:00 period), public transport flows leaving Euston by rail are forecast to increase by 23% compared to 2012.
- 6.3.59 Future baseline public transport flows for 2041 arriving at Euston by rail in the AM peak (07:00-10:00) period are forecast to increase by 46% compared to 2012. In the PM peak (16:00-19:00) period, public transport flows leaving Euston by rail are forecast to increase by 58% compared to 2012.

Table 6-11: 2026 and 2041 baseline rail demand growth at Euston station

	AM peak period (07:00-10:00)			PM peak period (16:00-19:00)		
	2012 baseline	2026 baseline	2041 baseline	2012 baseline	2026 baseline	2041 baseline
From trains	24,682	29,441	36,092	11,530	12,374	15,961
To trains	8,513	11,995	14,543	23,981	29,583	37,789

- 6.3.60 Upgrades planned by 2026 on the underground network mitigate the effects and result in minimal changes to crowding. This is apparent around Euston by assessing crowding on the Northern line Bank and Charing Cross branches, the Victoria line and Piccadilly line. With the exception of the section of the Northern line Bank branch between Camden Town and Euston (where there is an increase of 0.4 passengers per square metre (PPSM)) and the Hammersmith & City, Circle and Metropolitan lines which experience small increases, crowding is equal to or less than the base year.
- 6.3.61 By 2041, passenger increases are such that crowding levels increase on most lines and will be above 4 PPSM on the Northern line Bank branch and Victoria line. Figure 6-11 to

- 6.3.62 Figure 6-15 show the station to station average crowding per train for the 2041 future baseline scenario. The base year crowding level is shown in blue and the 2041 future baseline crowding in pink and the figures illustrate the small levels of incremental crowding on all lines by 2041.
- 6.3.63 The level of crowding on the LU and National Rail services in 2026 for the AM peak period can be seen on Figure 6-3 and Figure 6-4 and for the PM peak period on Figure 6-5 and Figure 6-6. Crowding on LU and National Rail services in 2041 for the AM peak period can be seen on Figure 6-7 and Figure 6-8 and for the PM peak period on Figure 6-9 and Figure 6-10.
- 6.3.64 At this level, where crowding is categorised into bands, there is little difference between the 2026 and 2041 baselines. The exception to this is increased crowding levels during the AM peak period on the Northern Line Bank branch from Euston, the westbound Central line from Bank and the northbound Victoria line from Green Park. During the PM peak, there are increases in crowding levels on northbound Victoria line services from Euston and on the northbound Northern line Charing Cross branch towards Camden Town.

Figure 6-3: LU crowding - 2026 future baseline AM peak period

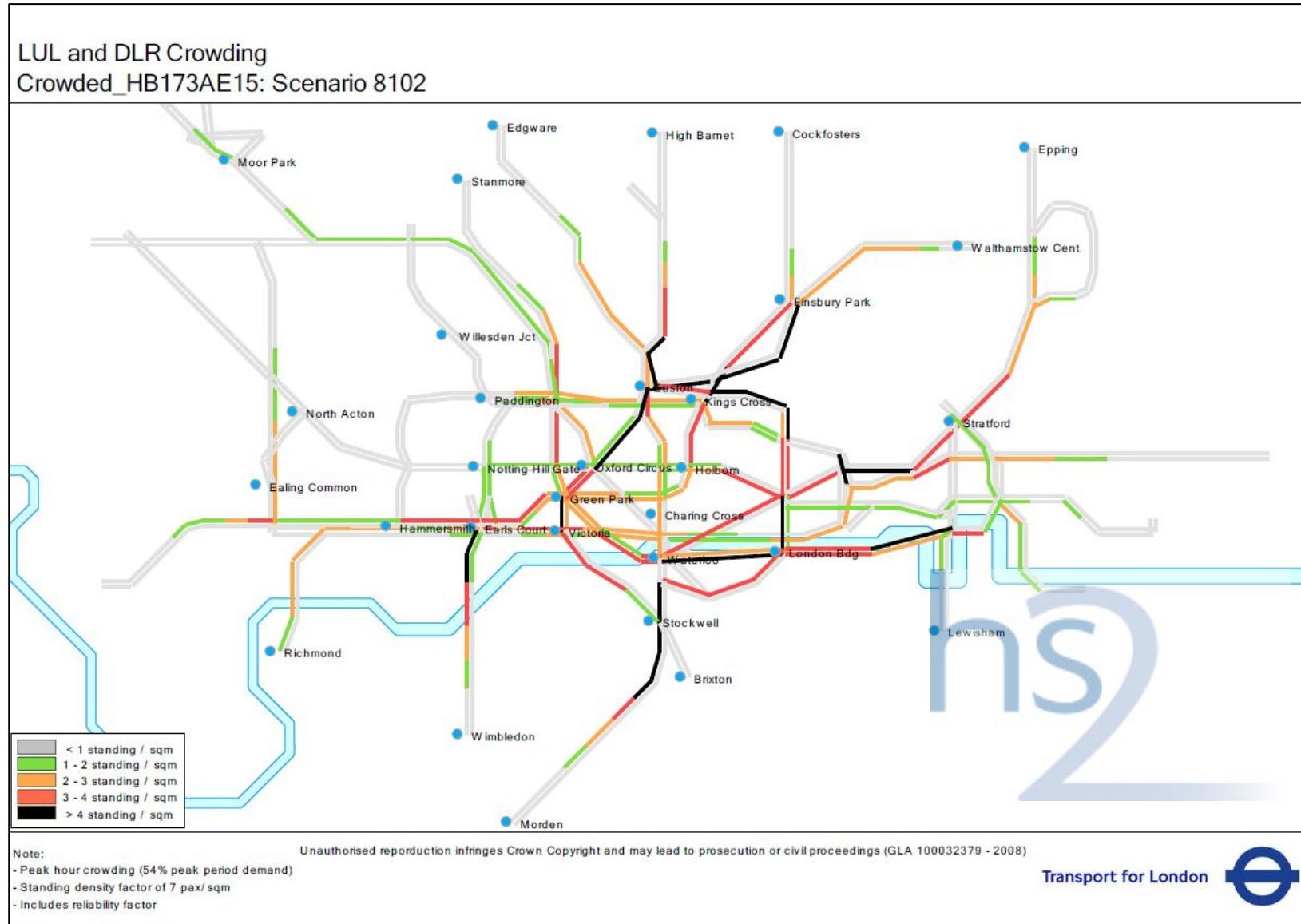


Figure 6-4: National Rail crowding - 2026 future baseline AM peak period

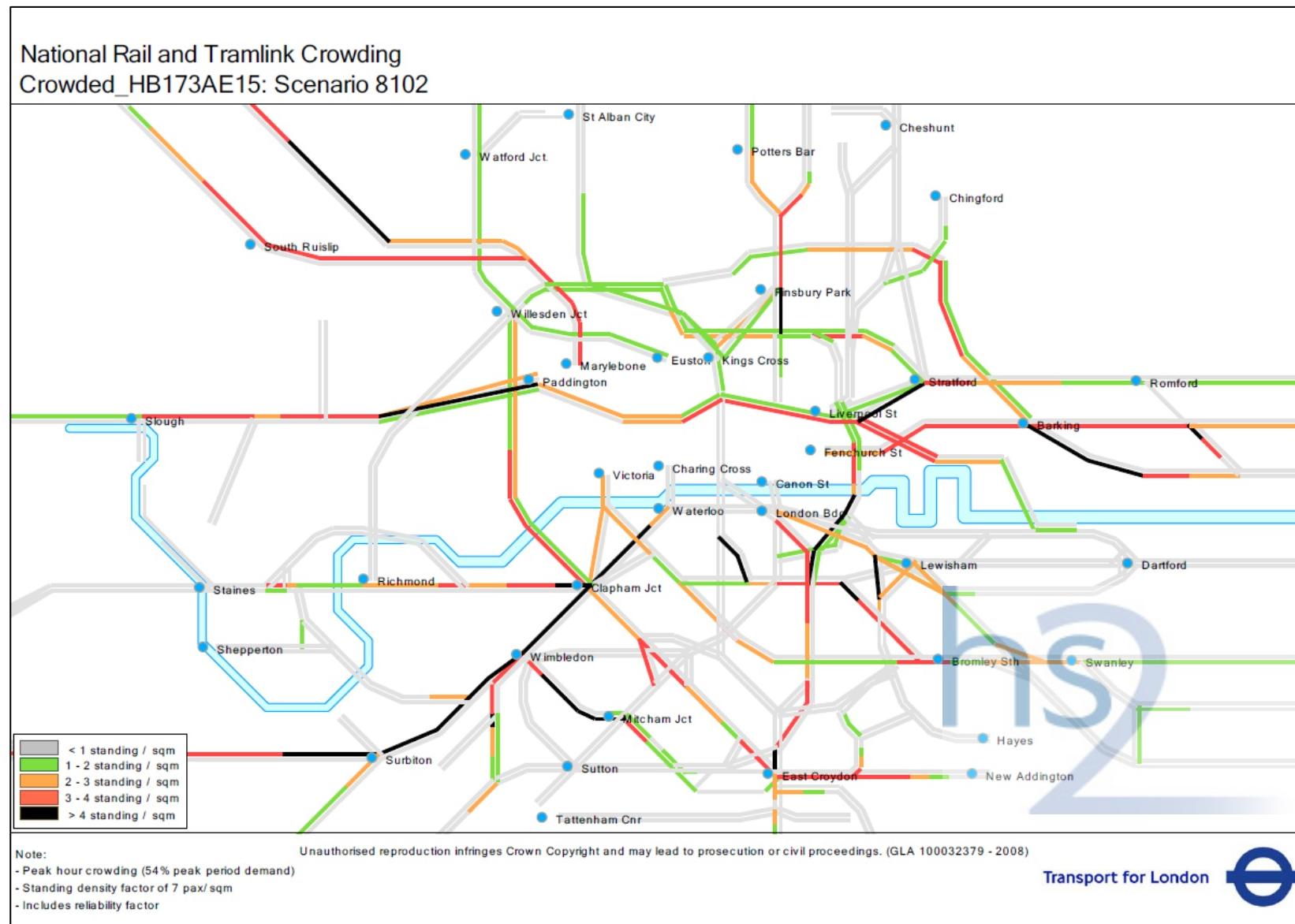


Figure 6-5: LU crowding - 2026 future baseline PM peak period

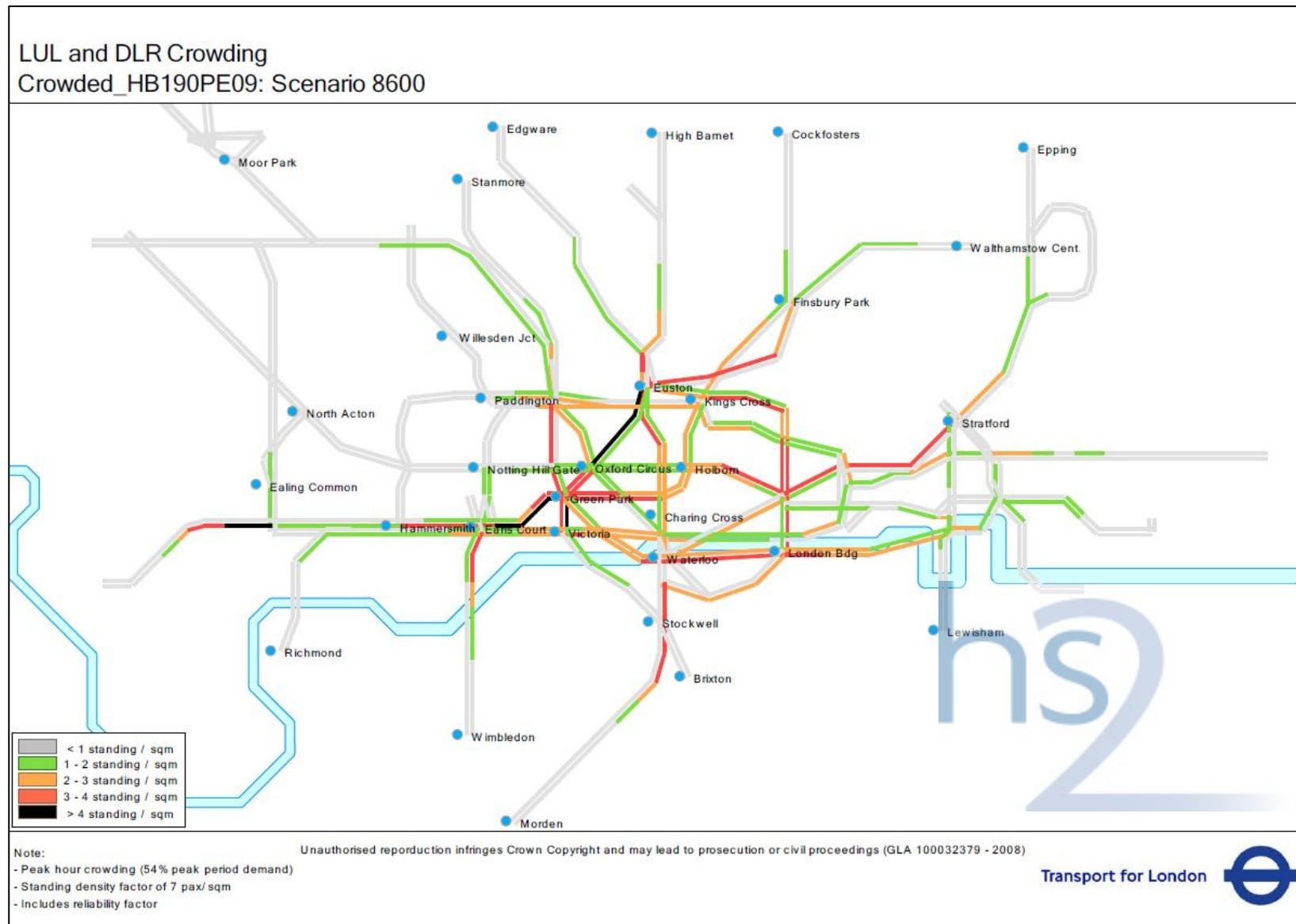


Figure 6-6: National Rail crowding - 2026 future baseline PM peak period

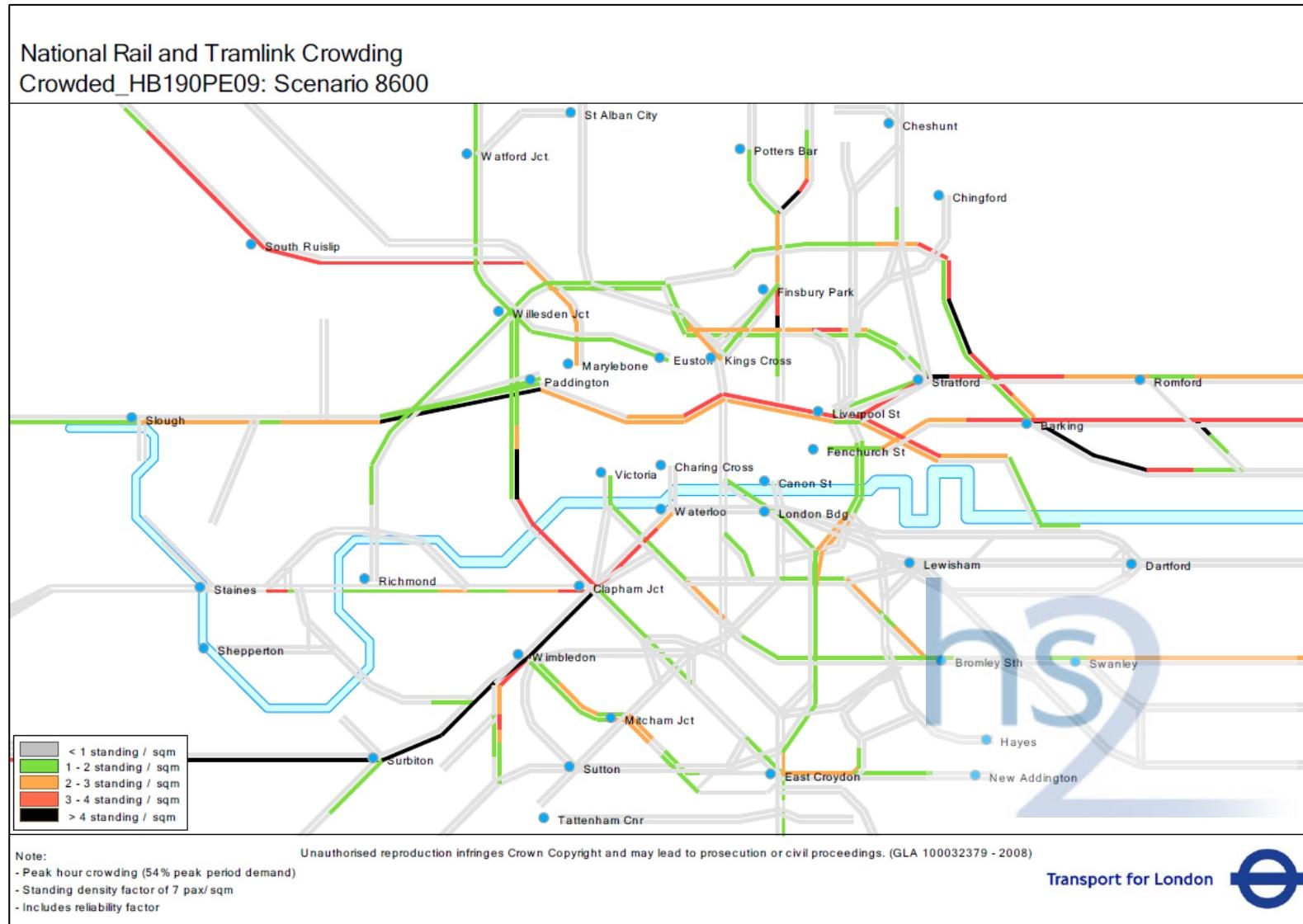


Figure 6-7: LU crowding - 2041 future baseline AM peak period

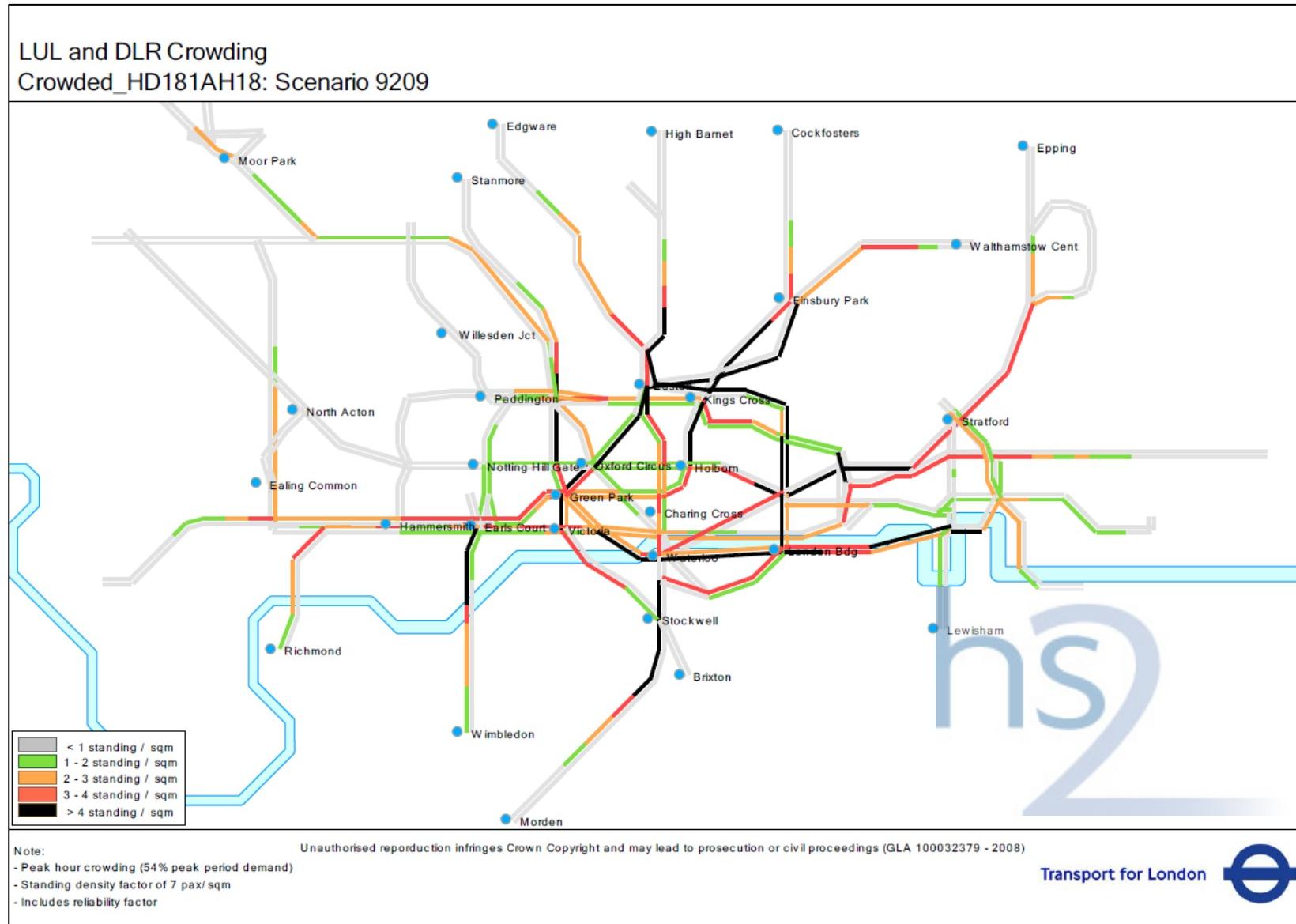


Figure 6-8: National Rail crowding - 2041 future baseline AM peak period

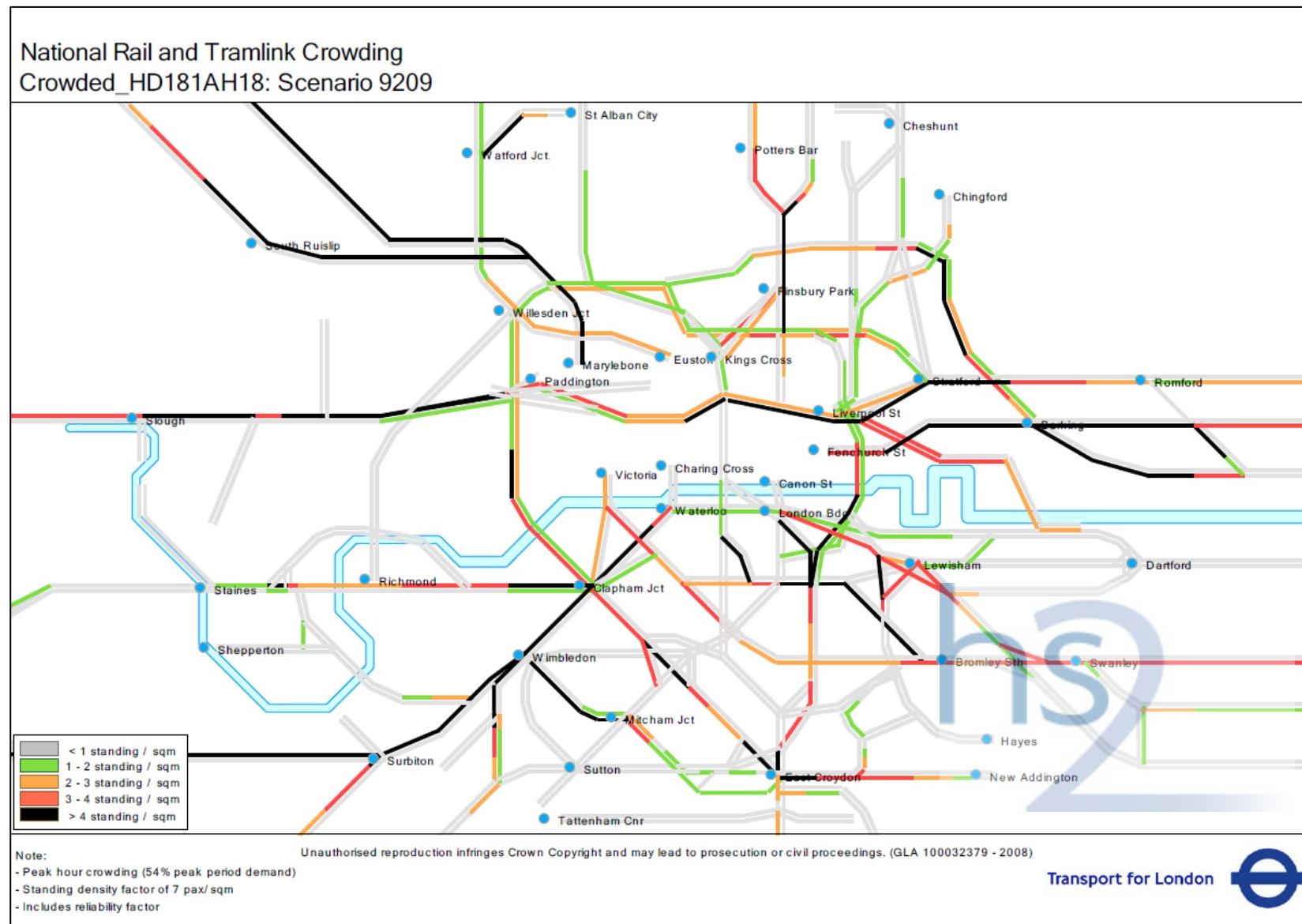


Figure 6-9: LU crowding - 2041 future baseline PM peak period

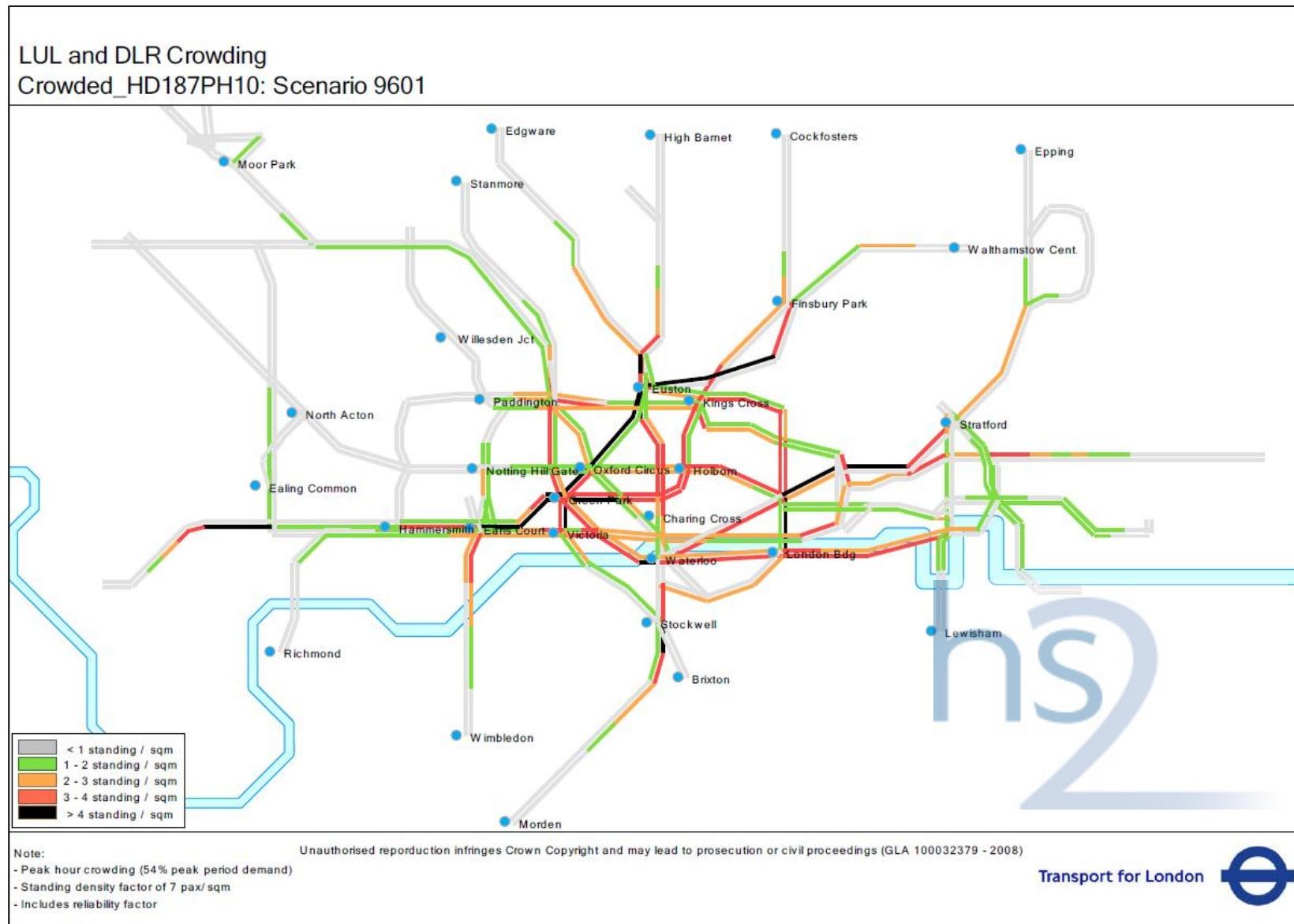


Figure 6-10: National Rail crowding - 2041 future baseline PM peak period

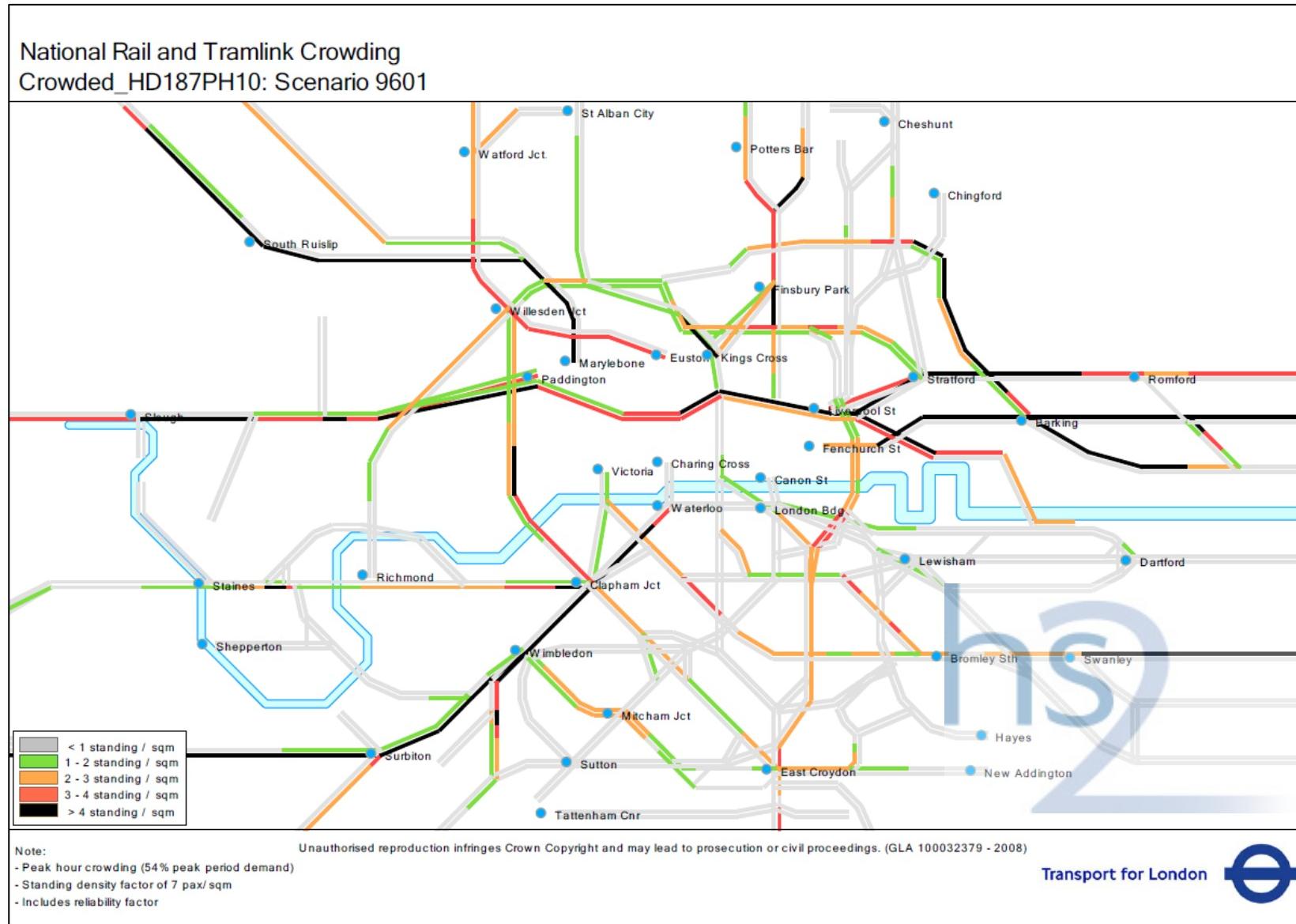


Figure 6-11: AM peak period baseline and 2041 future baseline crowding levels - Northern line Bank branch southbound

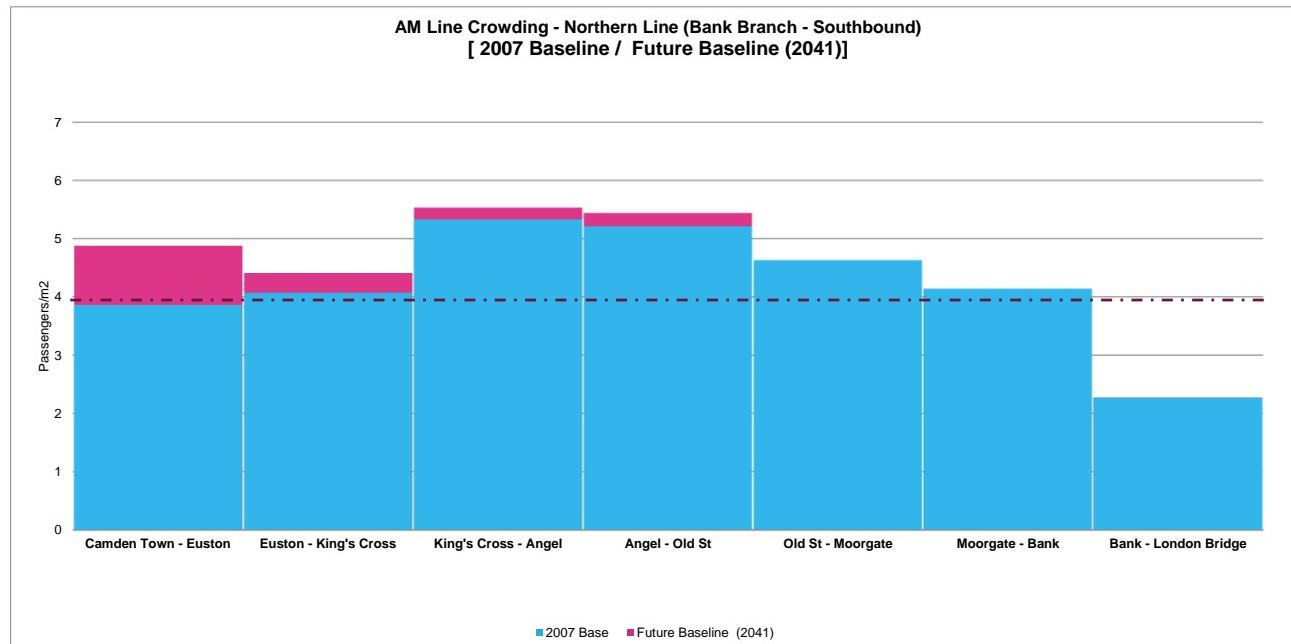


Figure 6-12: AM peak period baseline and 2041 future baseline crowding levels - Northern line Charing Cross branch southbound

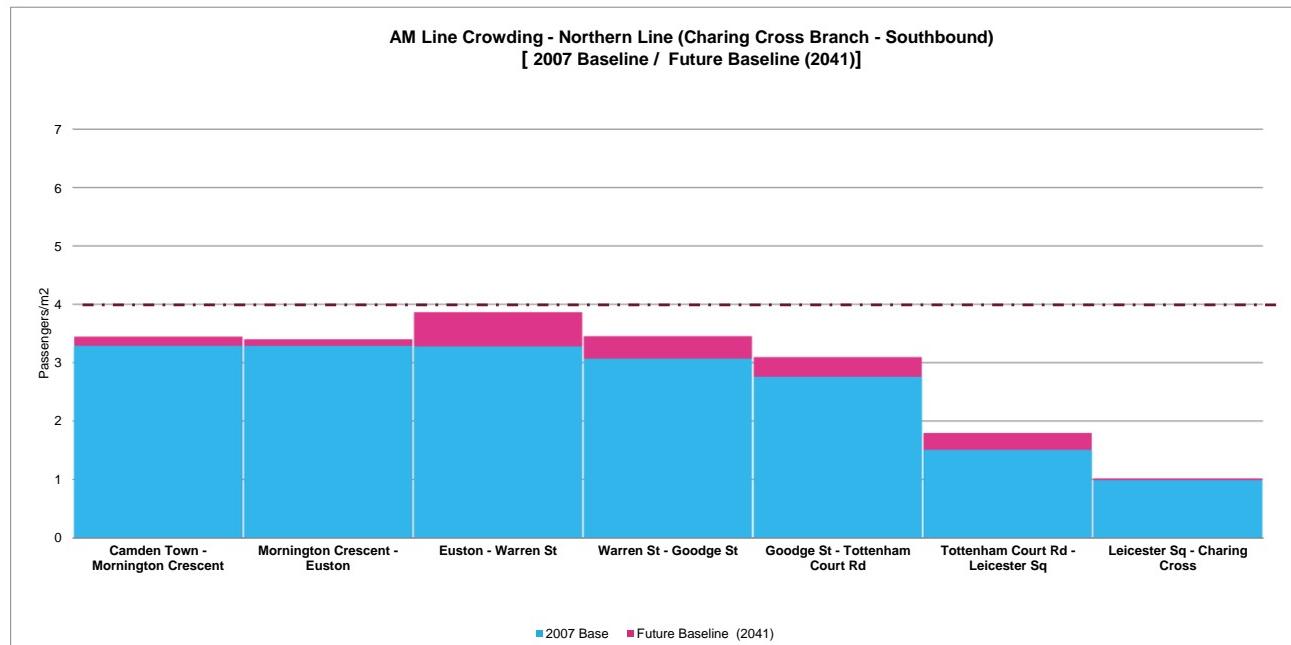


Figure 6-13: AM peak period baseline and 2041 future baseline crowding levels - Victoria line southbound

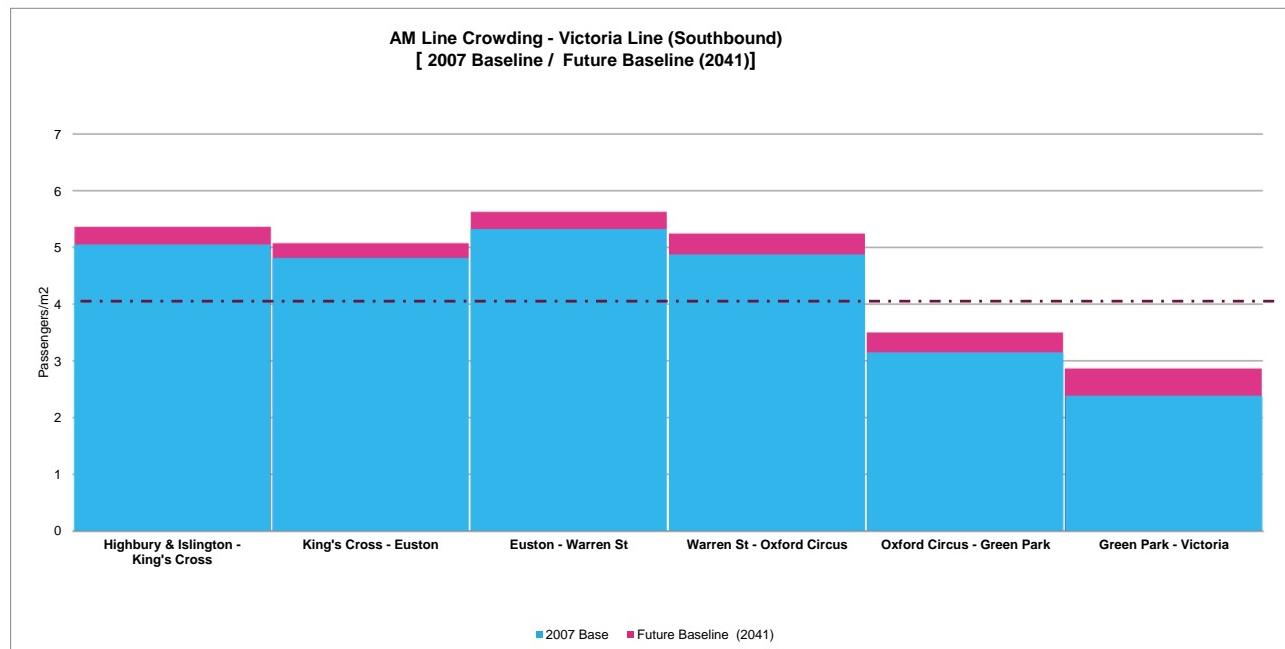


Figure 6-14: AM peak period baseline and 2041 future baseline crowding levels - Hammersmith & City, Circle and Metropolitan lines eastbound

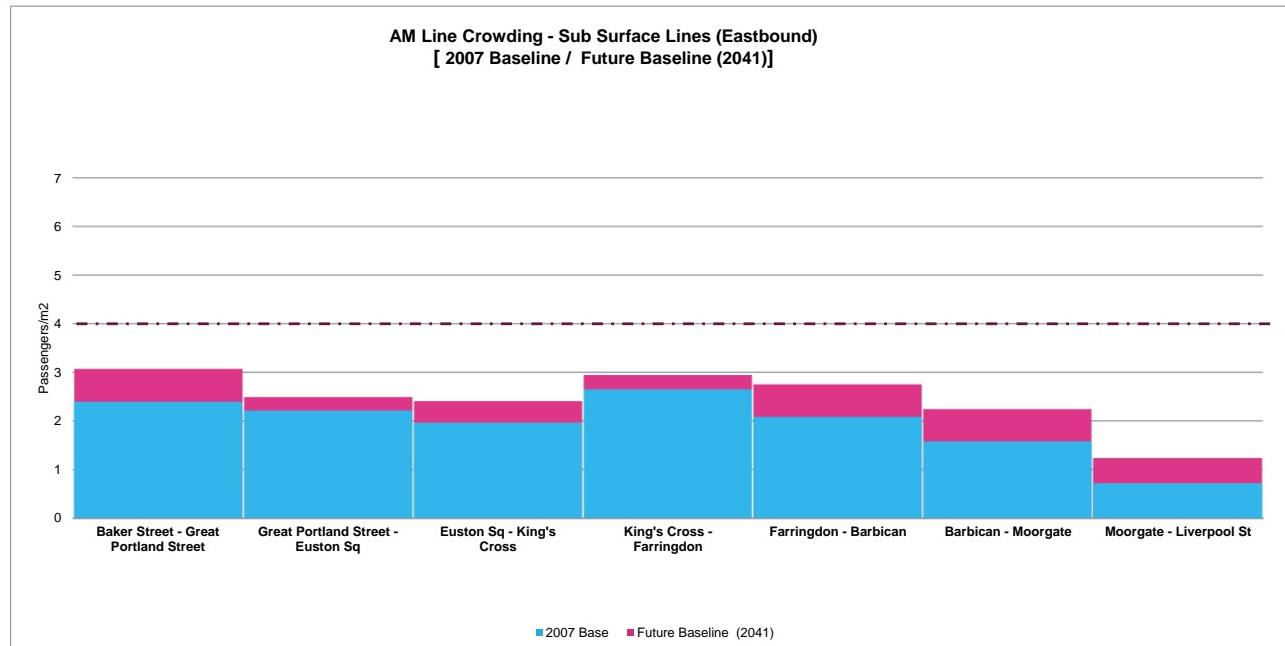
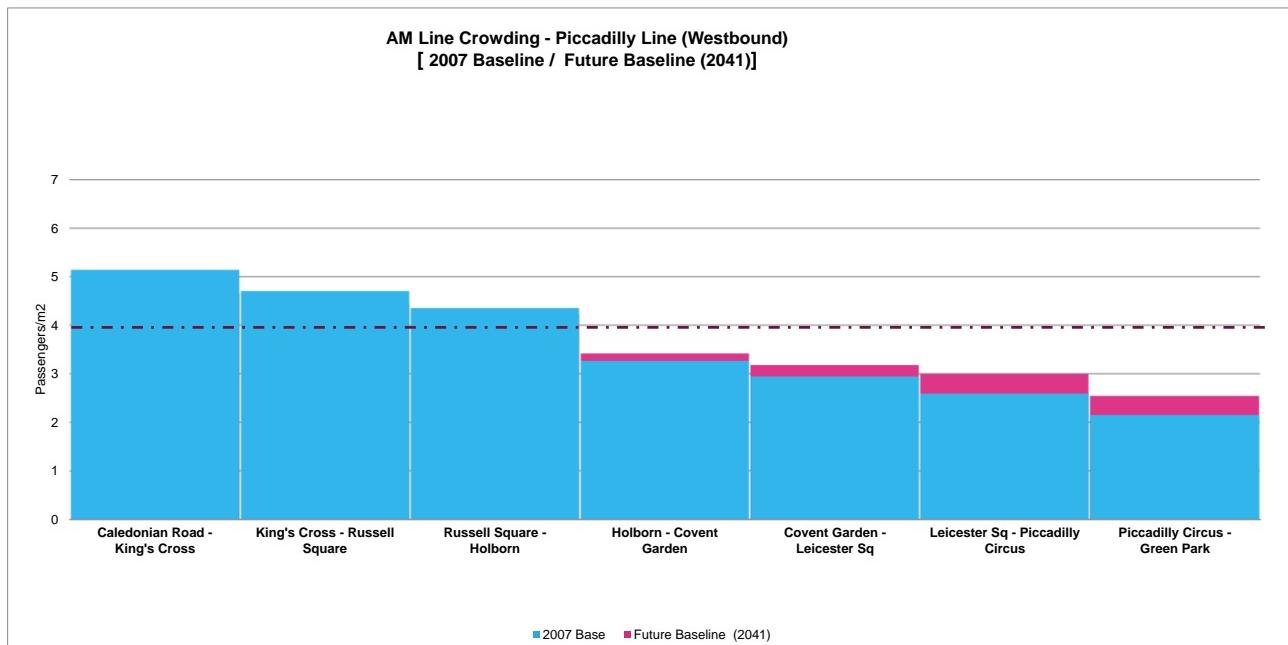


Figure 6-15: AM peak period Baseline and 2041 future baseline crowding levels - Piccadilly line southbound



## Bus and coach services

- 6.3.65 Demand for buses is expected to increase with respect to the 2012 baseline in the 2026 and 2041 future baseline scenario. The increase bus passenger boarding and lighting demand between 2012 and 2026 and 2041 has been derived by calculating the proportional increase between the future baseline and base year in Railplan and applying this to the 2012 baseline demand, which was obtained through surveys of passengers boarding or alighting from buses in the Euston. The surveys were undertaken in June 2012.
- 6.3.66 The number of bus boarders and alighters in the Euston station area and on bus routes in the A400 Hampstead Road area are set out in Table 6-12 for the AM and PM peak periods. The Euston station area includes:
- all bus stops in Euston bus station;
  - A501 Euston Road westbound stop H and eastbound terminating stop AZ;
  - A4200 Eversholt Street northbound stop A and southbound stop B; and
  - A4200 Upper Woburn Place northbound stop L and southbound stop M.
- 6.3.67 The A400 Hampstead Road area includes:
- A400 Hampstead Road 'Robert Street' northbound stop J and southbound stop; and
  - A400 Hampstead Road 'Silverdale' northbound stop B and southbound stop W.

Table 6-12: 2026 and 2041 future baseline bus demand

AM peak period 07:00 - 10:00														
Location	2012		2026		2041		Actual change from 2012 to 2026		Actual change from 2012 to 2041		% change from 2012 to 2026		% change from 2012 to 2026	
	Boarders	Alighters	Boarders	Alighters	Boarders	Alighters	Boarders	Alighters	Boarders	Alighters	Boarders	Alighters	Boarders	Alighters
Euston station area	3,314	2,330	4,062	2,271	5349	2670	748	-59	2,035	340	-23%	-2%	61%	10%
A400 Hampstead Road area	689	539	325	242	385	279	-364	-297	-304	-260	-11%	-9%	-9%	-8%

PM peak period 16:00 - 19:00														
Location	2012		2026		2041		Actual change from 2012 to 2026		Actual change from 2012 to 2041		% change from 2012 to 2026		% change from 2012 to 2026	
	Boarders	Alighters	Boarders	Alighters	Boarders	Alighters	Boarders	Alighters	Boarders	Alighters	Boarders	Alighters	Boarders	Alighters
Euston station area	4,057	3,205	1,847	3,019	2458	4273	-2,210	-186	-1,599	-1,068	-54%	-5%	-39%	26%
A400 Hampstead Road area	684	642	324	423	382	483	-360	-219	-302	-159	-9%	-5%	-7%	-4%

- 6.3.68 The changes to bus journey times between the 2012 baseline and 2026 and 2041 future baseline scenarios are shown in Table 6-13 for the AM peak hour and Table 6-14 for the PM peak hour. The journey time changes can be attributed to increase in traffic on the network changes in traffic patterns in both the 2026 and 2041 future baseline scenarios.

Table 6-13: 2012 baseline, 2026 future baseline and 2041 future baseline bus journey times (in minutes) - AM peak hour

Bus route	From / to	Direction	2012	2026	2041	Actual Change 2012 to 2026	% Change 2012 to 2026	Actual Change 2012 to 2041	% Change 2012 to 2041
10	King's Cross to Hammersmith	Eastbound and westbound	90.8	91.8	94	1	1.1%	3.2	3.5%
30	Hackney Wick to Oxford Street	Eastbound	47.7	49	50	1.3	2.7%	3.9	4.8%
		Westbound	51.2	52.3	55.1	1.1	2.1%	2.3	7.6%
73	Victoria to Stoke Newington	Eastbound	40.7	41.2	42	0.5	1.2%	4.1	3.2%
		Westbound	40.5	41.9	44.6	1.4	3.5%	1.3	10.1%
205	Paddington to Bow	Eastbound	51.2	52.4	53.4	1.2	2.3%	3.5	4.3%
		Westbound	54.5	54.7	58	0.2	0.4%	2.2	6.4%
390	Archway to Notting Hill Gate	Eastbound and westbound	81.5	82.6	85.1	1.1	1.3%	3.6	4.4%
59	Streatham Hill to King's Cross	Eastbound	34.6	35.2	35.6	0.6	1.7%	0.2	2.9%
		Southbound	34.9	34.4	35.1	-0.5	-1.4%	1	0.6%
91	Trafalgar Square to Hornsey	Eastbound	35.2	35.8	35.9	0.6	1.7%	1.4	2.0%
		Southbound	36.2	36	37.6	-0.2	-0.6%	0.7	3.9%
18	Euston to Sudbury	Eastbound	38.2	37.8	38.7	-0.4	-1.0%	1.2	1.3%
		Westbound	43.3	43.5	44.5	0.2	0.5%	0.5	2.8%
476	Euston to Northumberland Park	Eastbound and westbound	70.9	72.7	75.1	1.8	2.5%	4.2	5.9%
68	Euston to West Norwood	Northbound and southbound	81.5	83.3	85.4	1.8	2.2%	3.9	4.8%
253	Euston to Hackney	Northbound and southbound	66.1	66.7	69.4	0.6	0.9%	3.3	5.0%
168	Hampstead Heath to Old Kent Road	Northbound and southbound	84.2	84.3	86.5	0.1	0.1%	2.3	2.7%

Bus route	From / to	Direction	2012	2026	2041	Actual Change 2012 to 2026	% Change 2012 to 2026	Actual Change 2012 to 2041	% Change 2012 to 2041
24	Hampstead Heath to Grosvenor Road	Northbound	39	39.6	39.8	0.6	1.5%	2.7	2.1%
		Southbound	39.5	40.9	42.2	1.4	3.5%	0.8	6.8%
27	Chalk Farm to Chiswick	Northbound and southbound	106.4	108.7	109.5	2.3	2.2%	3.1	2.9%
29	Trafalgar Square to Wood Green	Northbound and southbound	74.3	77.5	80	3.2	4.3%	5.7	7.7%
88	Camden Town to Clapham Common	Northbound	44.2	46.3	46.5	2.1	4.8%	2.3	5.2%
		Southbound	43.8	43.3	44.6	-0.5	-1.1%	0.8	1.8%
134	North Finchley to Tottenham Court Road	Northbound	27.6	28.6	29	1	3.6%	1.4	5.1%
		Southbound	33.5	34.9	36.8	1.4	4.2%	3.3	9.9%

Table 6-14: 2012 baseline, 2026 future baseline and 2041 future baseline bus journey times (in minutes) - PM peak hour

Bus route	From / to	Direction	2012	2026	2041	Actual Change 2012 to 2026	% Change 2012 to 2026	Actual Change 2012 to 2041	% Change 2012 to 2041
10	King's Cross to Hammersmith	Eastbound and westbound	114.2	134.2	137.9	20	17.5%	23.7	20.8%
30	Hackney Wick to Oxford Street	Eastbound	50.5	49.9	52.4	-0.6	-1.2%	1.9	3.8%
		Westbound	60.1	62.9	66.7	2.8	4.7%	6.6	11.0%
73	Victoria to Stoke Newington	Eastbound	50.5	71.6	72.9	21.1	41.8%	22.4	44.4%
		Westbound	55.1	58.1	61.4	3	5.4%	6.3	11.4%
205	Paddington to Bow	Eastbound	57.1	55.7	58.3	-1.4	-2.5%	1.2	2.1%
		Westbound	64.7	68.3	71.1	3.6	5.6%	6.4	9.9%

Bus route	From / to	Direction	2012	2026	2041	Actual Change 2012 to 2026	% Change 2012 to 2026	Actual Change 2012 to 2041	% Change 2012 to 2041
390	Archway to Notting Hill Gate	Eastbound and westbound	95.4	119.5	122.6	24.1	25.3%	27.2	28.5%
59	Streatham Hill to King's Cross	Eastbound	39.2	39.7	41.1	0.5	1.3%	1.9	4.8%
		Southbound	38.4	41.4	42.8	3	7.8%	4.4	11.5%
91	Trafalgar Square to Hornsey	Eastbound	32.8	32.6	33.3	-0.2	-0.6%	0.5	1.5%
		Southbound	40.3	43.2	44.7	2.9	7.2%	4.4	10.9%
18	Euston to Sudbury	Eastbound	35.7	36.7	37.3	1	2.8%	1.6	4.5%
		Westbound	34.9	33.2	34.6	-1.7	-4.9%	-0.3	-0.9%
476	Euston to Northumberland Park	Eastbound and westbound	77.1	79.1	82.8	2	2.6%	5.7	7.4%
68	Euston to West Norwood	Northbound and southbound	84.3	89.1	92	4.8	5.7%	7.7	9.1%
253	Euston to Hackney	Northbound and southbound	63.1	65.2	68.8	2.1	3.3%	5.7	9.0%
168	Hampstead Heath to Old Kent Road	Northbound and southbound	77.3	78.7	81.3	1.4	1.8%	4	5.2%
24	Hampstead Heath to Grosvenor Road	Northbound	45.7	68.7	69	23	50.3%	23.3	51.0%
		Southbound	41.7	42.9	43.8	1.2	2.9%	2.1	5.0%
27	Chalk Farm to Chiswick	Northbound and southbound	118.4	120.2	123.4	1.8	1.5%	5	4.2%
29	Trafalgar Square to Wood Green	Northbound and southbound	82.5	108.5	111.1	26	31.5%	28.6	34.7%
88	Camden Town to Clapham Common	Northbound	50.2	51.5	53.1	1.3	2.6%	2.9	5.8%
		Southbound	49	47.4	49.9	-1.6	-3.3%	0.9	1.8%
134	North Finchley to Tottenham Court Road	Northbound	34.3	35.6	37.1	1.3	3.8%	2.8	8.2%
		Southbound	37	60.2	60.6	23.2	62.7%	23.6	63.8%

## **Public transport interchanges**

- 6.3.69 Euston station currently experiences a range of congestion issues and growth and proposed service enhancements (particularly the completion of upgrade works to the Northern line) are expected to result in further congestion growth. The main capacity issue in the AM peak is within the LU station, where access to the southbound Victoria line and Northern line Bank branch is currently very close to the theoretical capacity of the system. Analysis of the PM peak identifies capacity in the rail concourse as being the area of weakest performance. This was previously identified in Network Rail's Network Route Utilisation Strategy (RUS)<sup>5</sup> for stations. The RUS also identifies that the operation of this area requires management and control by station staff.
- 6.3.70 These capacity issues are identified as being a result of the constraints of the existing infrastructure and will be further exacerbated by the forecast growth in the baseline scenario.

## **Taxis**

- 6.3.71 Apart from any changes to growth in demand for taxis, which is included in the overall background in general traffic, no proposals or commitments to change the location of taxi ranks in the vicinity of Euston station have been considered in this assessment.

## **Pedestrians**

- 6.3.72 The 2026 and 2041 future baseline scenarios pedestrian demand has been derived by:
- applying a 0.5% growth per year to the background pedestrian network demand; and
  - using the 2026 and 2041 Railplan demand and pedestrian mode share.
- 6.3.73 The pedestrian crossing and footway comfort level assessments, using this demand, are outlined in the subsequent sections.
- 6.3.74 The future baseline pedestrian crossing comfort assessment aims to understand if the infrastructure is comfortable for users during the 2026 and 2041 future baseline scenarios.

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<sup>5</sup> Network Rail Utilisation Strategy - Stations (Network Rail, August 2011)

6.3.75 Table 6-15 shows the pedestrian comfort level (PCL) assessment for the pedestrian crossing in the vicinity of Euston station for the 2012 baseline and 2026 and 2041 future baseline scenarios. A PCL A shows the most comfortable conditions while a PCL E shows the least comfortable conditions<sup>6</sup>. The pedestrian crossing locations can be seen in Figure 6-16.

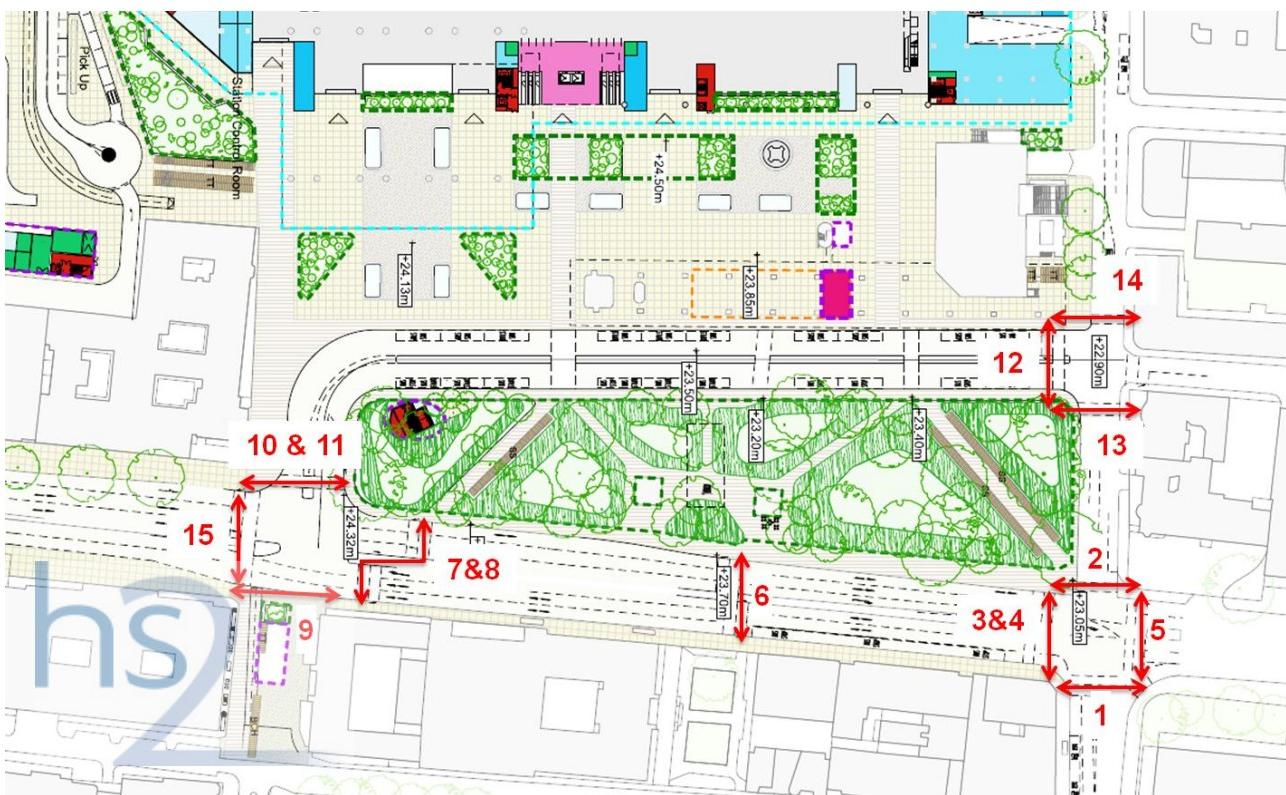
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<sup>6</sup> Pedestrian Comfort Level guidance document (TfL, 2010)  
6-50

Table 6-15: 2026 and 2041 future baseline PCL assessment for pedestrian crossings

No.	Location	Actual width (m)	AM peak hour (08:00 - 09:00)			PM peak hour (17:00 - 18:00)		
			2012 baseline	2026 baseline	2041 baseline	2012 baseline	2026 baseline	2041 baseline
1	A4200 Upper Woburn Place at A501 Euston Road	3	B	B	B	B-	B-	C+
2	Euston Square at A501 Euston Road	3	B-	B	B	B	B+	B+
3	A501 Euston Road (West) at A4200 Upper Woburn Place	4	B-	C+	C-	C	C	C-
4	A501 Euston Road (West) at Euston Square	4	B-	C+	C-	C	C	D
5	A501 Euston Road (East) at A4200 Upper Woburn Place	3	E	E	E	E	C+	C+
6	A501 Euston Road	3.3	B-	B-	C+	B-	B	B
7	A501 Euston Road (East) at Gordon Street	3	E	E	E	B+	E	E
8	A501 Euston Road (East) at Gordon Street	3	B	E	B	B	B+	B
9	Gordon Street at A501 Euston Road	3	B+	B+	B	E	B+	B+
10	Bus station access at A501 Euston Road	3	E	E	E	E	E	E
11	Bus station access at A501 Euston Road	3	D	D	E	E	D	D
12	Bus station access at A4200 Eversholt Street	3	E	E	E	E	E	E
13	Euston Square at Grafton Way	2.5	C	C	C-	C-	B-	C
14	A4200 Eversholt Street at Grafton Way	2.5	C+	B-	C	B-	B+	B
15	A501 Euston Road at Gordon Street (new crossing)	10	-	-	-	-	-	-

Figure 6-16: Pedestrian crossing locations



6.3.76 The assessment results show that similarly to the 2012 baseline scenario, pedestrians are uncomfortable at crossings with Pedestrian Comfort Level (PCL) results ranging from C+ to E for the 2026 and 2041 future baseline scenarios during the AM and PM peak hours. Based on this, the crossings can have a large degree of restricted movement at peak times and may lead to some users avoiding certain crossings.

6.3.77 The crossings which show PCL E include:

- A501 Euston Road junction with A4200 Eversholt Street and A4200 Upper Woburn Place on the east and north sides;
- A501 Euston Road junction with Gordon Street on the east side; and
- The west side of the A4200 Eversholt Street junction with Grafton Place.

- 6.3.78 At the junction of A501 Euston Road junction with Melton Street, the busiest crossing is the north side of A501 Euston Road at Melton Street which shows PCL E. Flow rates (in terms of people per metre per minute) are higher than elsewhere, and the static theoretical analysis suggests that the flow of people cannot continue to be physically accommodated given signal times and crossing width. Further observations and analysis have identified that a considerable number of pedestrians (up to 80%) cross on red signals and use more width than the demarcated crossing area. This pattern of movement is expected to continue at this crossing during the 2026 and 2041 future baseline scenarios.
- 6.3.79 The future baseline pedestrian footway comfort assessment aims to understand if the infrastructure is comfortable for users during the 2026 and 2041 future baseline scenarios. Similarly to the 2012 baseline scenario, the pedestrian comfort assessment for the Euston station area included main footways for:
- A501 Euston Road between North Gower Street and Dukes Road (north and south footways);
  - A4200 Eversholt Street between A501 Euston Road and Grafton Place (western footway);
  - Melton Street between A501 Euston Road and Drummond Street (eastern footway); and
  - Drummond Street between Melton Street and North Gower Street (north and south footways).
- 6.3.80 An assessment was undertaken when the clear width changed along the footway length. For example, static objects like street furniture and areas where people are waiting such as bus stops or cafes all change the available width for pedestrian movement.
- 6.3.81 Similarly to the pedestrian crossing assessment, the PCL ranges from A (most comfortable) to F (least comfortable), and is measured in people per metre minute (ppmm).
- 6.3.82 The analysis was undertaken using two-way footway pedestrian counts to reflect the forecast level of demand, and summarised in EAP Pedestrian Analysis provided by WSP and Space Syntax. Based on these flows, the assessment results show the majority of streets in the vicinity of Euston station have footway widths that are comfortable for their users.
- 6.3.83 The main areas that may require mitigation measures (with results showing a PCL C- to F) are as follows:
- A501 Euston Road, east of Melton Street: two bus stops on the north and

south side;

- Euston Street; and
- Drummond Street.

6.3.84 At all of these locations street furniture or obstructions will continue to reduce the effective width for pedestrians to less than minimum requirements recommended by TfL.

### Cyclists

6.3.85 The Railplan model results have been used to calculate a scale factor based on the estimated change in rail passenger numbers and any change in cycle mode share. The cycle trip generation for the 2026 and 2041 future baseline scenarios has been estimated by applying this scale factor to the 2012 cycle trips.

6.3.86 The demand for cycling at Euston station in the 2026 and 2041 future baseline scenarios is shown in Table 6-16. This is based on the existing mode share of 2% to 3% for cycling at the station.

Table 6-16: 2026 and 2041 future baseline cycling demand - existing mode share

	AM peak hour (08:00 - 09:00)		PM peak hour (17:00 - 18:00)	
	To Euston	From Euston	To Euston	From Euston
2026 baseline	44	202	166	28
2041 baseline	53	246	214	34

6.3.87 Many stakeholders including TfL predict a growth in cycle mode share from mainline stations. Following consultation with TfL, a 7% mode share scenario has been assessed. The cycle demand at 7% mode share is shown in Table 6-17.

Table 6-17: 2026 and 2041 future baseline cycling demand - 7% mode share

	AM peak hour (08:00 - 09:00)		PM peak hour (17:00 - 18:00)	
	To Euston	From Euston	To Euston	From Euston
2026 baseline	394	975	1,458	210
2041 baseline	478	1,196	1,845	271

6.3.88 This additional demand is expected to follow the same distribution on the local cycle network as the 2012 baseline cycle demand.

*Euston - Station and Approach (CFA 1), Camden and HS1 Link (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) strategic and local road network traffic flows*

- 6.3.89 Future baseline vehicle matrices for 2021, 2026 and 2041 were based on the recalibrated 2012 CLoHAM model and developed and provided by TfL, based on growth in LTS demand which assumes London Plan growth. Consented highway schemes have been included in the relevant future baseline scenarios.
- 6.3.90 Traffic volumes in the future baseline peak hours are forecast to grow by approximately 4% across the network by 2021 compared to 2012. This has been derived from the demand growth between the 2012 CLoHAM model and the 2021 demand supplied by TfL. Traffic volumes in the peak hours are forecast to grow by approximately 7% by 2026 compared to 2012. Traffic volumes are forecast to grow by approximately 11% by 2041 compared to 2012.
- 6.3.91 As part of the assessment of the Proposed Scheme, a number of links in CLoHAM (covering CFA1 and parts of CFA2 and CFA3), have been identified and the traffic flow impacts assessed strategically through CLoHAM. The 2021, 2026 and 2041 future baseline traffic flows on two screenlines comprising key links immediately north and south of A501 Euston Road and on A501 Euston Road itself are shown in Table 6-18 and Table 6-19 for the AM and PM peak hours respectively and on a screenline further north between A5203 Caledonian Road and A5 Kilburn High Road, running east west immediately north of Camden, as shown in Table 6-20 and Table 6-21, for the AM and PM peak respectively.
- 6.3.92 The tables show the total vehicle flows and HGV flows for each scenario as well the actual and proportional increase with respect to the 2012 baseline scenario. Taking the AM peak, the northern Camden screenline increases by around 6% in each direction between 2012 and 2041, with the north of Euston Road screenline increasing by around 16% northbound and 4% southbound and the south of Euston Road reducing northbound but increasing by around 6% southbound over the same period. Flow increases are slightly higher in the PM peak period across all 3 screenlines.
- 6.3.93 The flow differences between the 2012 baseline and the 2021, 2026 and 2041 future baseline scenarios for the AM and PM peak hours are also shown in Figure 6-17 to Figure 6-22 with red bands denoting a flow increase and green a decrease. As expected, due to general and continued growth the figures indicate traffic growth increasing over time. By 2041, the greatest increases are on A501 Euston road, A5 Edgware Road, A4200 Upper Woburn Place, A4200 Eversholt Street, A400 Gower Street (southbound), Montague Place (eastbound) and A503 Camden Road.

Table 6-18: A501 Euston Road north and south screenline traffic flows - AM peak hour

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012		2021		2026		2041		2021	2026	2041	2021	2026	2041
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV						
<b>North of Euston Road</b>															
Outer Circle (between Park Square East and Chester Road)	Northbound	268	0	256	0	270	0	283	0	-12	2	15	-4%	1%	6%
	Southbound	190	0	201	0	202	0	207	0	12	12	17	6%	6%	9%
A4201 Albany Street (between Robert Street and Longford Street)	Northbound	308	26	249	48	285	26	298	28	-60	-23	-10	-19%	-8%	-3%
	Southbound	276	16	277	33	299	17	283	17	0	23	6	0%	8%	2%
Stanhope Street (between Longford Street and Robert Street)	Northbound	64	3	94	8	107	4	118	5	29	43	53	45%	67%	83%
	Southbound	315	6	310	13	329	7	392	8	-4	15	77	-1%	5%	24%
A400 Hampstead Road (between Drummond Street and Robert Street)	Northbound	321	19	291	34	318	18	338	17	-30	-3	17	-9%	-1%	5%
	Southbound	656	47	477	81	603	52	633	52	-179	-53	-22	-27%	-8%	-3%
Cardington Street (north of Drummond Street)	Northbound	117	4	117	8	144	4	192	4	0	27	75	0%	23%	64%
	Southbound	277	11	289	21	161	6	172	7	11	-117	-106	4%	-42%	-38%
New Cobourg Street (north of Starcross Street)	Northbound	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Southbound	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A4200 Evershol St (between Phoenix Road and Polygon Road)	Northbound	225	13	252	29	262	15	309	17	27	38	84	12%	17%	37%
	Southbound	277	15	282	43	260	13	277	13	5	-17	0	2%	-6%	0%

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012		2021		2026		2041		2021	2026	2041	2021	2026	2041
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV						
Chalton Street (between Euston Road and Phoenix Road)	Northbound	66	3	95	10	103	5	91	4	29	37	25	44%	56%	38%
	Southbound	50	2	75	5	85	3	109	3	24	34	59	49%	67%	116%
Midland Road (between Brill Place and Euston Road)	Southbound	577	25	571	57	623	29	650	32	-6	46	73	-1%	8%	13%
A5202 Pancras Road (between Euston Road and Goods Way)	Northbound	243	10	298	21	326	10	349	12	55	84	107	23%	35%	44%
	Southbound	214	10	216	20	227	10	224	10	2	13	10	1%	6%	5%
A5203 York Way between Euston Road and Caledonia Street	Northbound	559	28	526	59	558	30	545	29	-34	-2	-14	-6%	0%	-2%
<b>South of Euston Road</b>															
A4201 Portland Place (between Devonshire Street and Park Crescent)	Northbound	273	5	286	9	296	5	298	5	14	23	25	5%	9%	9%
	Southbound	421	14	388	24	436	13	471	15	-33	15	50	-8%	4%	12%
B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street)	Southbound	258	13	234	25	232	12	246	13	-24	-26	-12	-9%	-10%	-5%
Cleveland Street (between Greenwell Street and Clipstone Street)	Southbound	170	7	250	16	256	8	257	8	79	85	87	47%	50%	51%
A400 Tottenham Court Road (between Grafton Way and Warren Street)	Southbound	876	68	745	115	792	54	801	57	-131	-84	-75	-15%	-10%	-9%

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012		2021		2026		2041		2021	2026	2041	2021	2026	2041
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV						
A400 Gower Street (between Grafton Way and Gower Place)	Southbound	711	27	524	45	624	24	650	29	-187	-88	-61	-26%	-12%	-9%
Gordon Street (between Endsleigh Gardens and Euston Road)	Northbound	317	40	336	43	337	21	384	29	19	20	67	6%	6%	21%
	Southbound	265	10	284	14	262	5	275	6	19	-3	10	7%	-1%	4%
A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)	Northbound	353	15	380	83	421	43	430	34	28	69	78	8%	19%	22%
	Southbound	608	18	638	48	680	25	702	24	30	72	94	5%	12%	15%
B504 Judd Street (between Bidborough Street and Euston Road)	Northbound	166	18	172	31	191	15	200	15	6	25	34	4%	15%	21%
	Southbound	494	24	432	50	449	24	474	26	-61	-45	-20	-12%	-9%	-4%
A501 Gray's Inn Road (east of Birkenhead Street)	Northbound	1704	86	1680	174	1816	86	1853	82	-25	111	149	-1%	7%	9%
<b>A501 Euston Road</b>															
A501 Euston Road between Euston Circus and Melton Street	Eastbound	1850	97	1763	201	1795	101	1573	84	-87	-56	-278	-5%	-3%	-15%
	Westbound	1666	114	1739	243	1898	109	1889	101	74	232	224	4%	14%	13%
A501 Euston Road between Melton Street and A4200 Upper Woburn Place	Eastbound	1630	82	1579	172	1661	85	1538	80	-51	31	-91	-3%	2%	-6%
	Westbound	1520	87	1475	222	1566	102	1510	86	-44	46	-9	-3%	3%	-1%
A501 Euston Road between A4200 Upper Woburn Place and Churchway	Eastbound	1334	74	1269	153	1348	76	1243	73	-65	14	-91	-5%	1%	-7%
	Westbound	1499	81	1461	158	1590	78	1596	73	-38	92	97	-3%	6%	6%

Table 6-19: A501 Euston Road north and south screenline traffic flows - PM peak hour

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012		2021		2026		2041		2021	2026	2041	2021	2026	2041
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV						
<b>North of Euston Road</b>															
Outer Circle (between Park Square East and Chester Road)	Northbound	561	0	594	0	644	0	752	0	32	83	191	6%	15%	34%
	Southbound	216	0	209	0	209	0	211	0	-7	-7	-6	-3%	-3%	-3%
A4201 Albany Street (between Robert Street and Longford Street)	Northbound	295	6	346	6	338	3	259	3	52	44	-36	18%	15%	-12%
	Southbound	356	5	304	2	314	1	330	1	-52	-42	-26	-15%	-12%	-7%
Stanhope Street (between Longford Street and Robert Street)	Northbound	27	1	54	1	72	0	182	1	26	45	155	95%	163%	563%
	Southbound	317	5	168	3	185	2	184	2	-149	-132	-133	-47%	-42%	-42%
A400 Hampstead Road (between Drummond Street and Robert Street)	Northbound	635	15	630	12	636	6	633	6	-5	1	-3	-1%	0%	0%
	Southbound	351	6	331	3	352	1	341	2	-20	0	-10	-6%	0%	-3%
Cardington Street (north of Drummond Street)	Northbound	192	2	162	2	166	1	188	1	-30	-26	-4	-16%	-13%	-2%
	Southbound	254	5	296	8	382	5	413	5	42	128	159	16%	50%	62%
New Cobourg Street (north of Starcross Street)	Northbound	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Southbound	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A4200 Eversholt St (between Phoenix Road and Polygon Road)	Northbound	311	6	276	5	289	2	329	4	-35	-22	18	-11%	-7%	6%
	Southbound	297	6	283	3	223	1	337	2	-15	-74	40	-5%	-25%	13%

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012		2021		2026		2041		2021	2026	2041	2021	2026	2041
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV						
Chalton Street (between Euston Road and Phoenix Road)	Northbound	99	1	96	3	95	2	111	2	-4	-4	12	-4%	-4%	12%
	Southbound	5	0	15	2	54	1	57	1	10	48	51	179%	893%	947%
Midland Road (between Brill Place and Euston Road)	Southbound	547	7	742	24	813	12	833	13	195	266	286	36%	49%	52%
A5202 Pancras Road (between Euston Road and Goods Way)	Northbound	185	2	602	8	627	4	644	5	417	442	459	225%	239%	248%
	Southbound	241	4	170	5	171	2	165	2	-72	-71	-76	-30%	-29%	-31%
A5203 York Way between Euston Road and Caledonia Street	Northbound	801	18	618	28	637	14	632	13	-184	-164	-170	-23%	-21%	-21%
<b>South of Euston Road</b>															
A4201 Portland Place (between Devonshire Street and Park Crescent)	Northbound	238	0	238	0	249	0	276	0	0	11	38	0%	5%	16%
	Southbound	545	9	515	23	532	12	513	12	-31	-13	-33	-6%	-2%	-6%
B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street)	Southbound	385	4	265	2	270	1	304	1	-120	-115	-81	-31%	-30%	-21%
Cleveland Street (between Greenwell Street and Clipstone Street)	Southbound	144	1	271	3	259	2	267	2	127	115	123	88%	80%	86%
A400 Tottenham Court Road (between Grafton Way and Warren Street)	Southbound	991	19	908	21	918	10	917	10	-83	-73	-74	-8%	-7%	-8%

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012		2021		2026		2041		2021	2026	2041	2021	2026	2041
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV						
A400 Gower Street (between Grafton Way and Gower Place)	Southbound	566	4	360	11	357	5	359	6	-205	-209	-207	-36%	-37%	-37%
Gordon Street (between Endsleigh Gardens and Euston Road)	Northbound	423	9	417	8	452	4	512	3	-5	29	90	-1%	7%	21%
	Southbound	194	3	251	3	265	2	267	2	57	71	73	29%	37%	37%
A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)	Northbound	327	6	376	6	404	3	437	4	50	77	110	15%	24%	34%
	Southbound	540	7	624	13	668	7	673	7	84	128	133	16%	24%	25%
B504 Judd Street (between Bidborough Street and Euston Road)	Northbound	145	2	113	2	114	1	125	2	-33	-32	-21	-23%	-22%	-14%
	Southbound	288	7	292	8	313	4	338	4	5	25	51	2%	9%	18%
A501 Gray's Inn Road (east of Birkenhead Street)	Northbound	1630	29	1694	49	1734	25	1748	26	64	104	118	4%	6%	7%
<b>A501 Euston Road</b>															
A501 Euston Road between Euston Circus and Melton Street	Eastbound	1162	37	1286	17	1297	8	1285	8	124	135	123	11%	12%	11%
	Westbound	1609	32	1673	33	1652	17	1679	17	64	44	70	4%	3%	4%
A501 Euston Road between Melton Street and A4200 Upper Woburn Place	Eastbound	1378	36	1518	15	1544	8	1547	8	139	166	169	10%	12%	12%
	Westbound	1372	29	1279	29	1271	14	1310	15	-93	-101	-62	-7%	-7%	-5%
A501 Euston Road between A4200 Upper Woburn Place and Churchway	Eastbound	1133	33	1214	12	1235	6	1252	6	81	102	119	7%	9%	10%
	Westbound	1408	26	1277	32	1352	16	1304	17	-130	-56	-104	-9%	-4%	-7%

Table 6-20: Caledonian Road to Kilburn High Road north and south screenline traffic flows - AM peak hour

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012		2021		2026		2041		2021	2026	2041	2021	2026	2041
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV						
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	321	10	338	11	349	11	367	13	17	28	46	5%	9%	14%
	Southbound	728	43	756	44	771	45	799	46	28	43	71	4%	6%	10%
A5200 York Way (north of Vale Road)	Northbound	280	38	293	40	303	40	314	39	13	23	34	5%	8%	12%
	Southbound	573	38	600	39	609	39	594	38	27	36	21	5%	6%	4%
A5202 St Pancras Way (north of Baynes Street)	Southbound	716	34	698	34	700	35	768	38	-18	-16	52	-3%	-2%	7%
Randolph Street (East of Royal College Street)	Eastbound	92	2	123	2	120	2	130	3	31	28	38	34%	31%	42%
Royal College Street (south of Camden Rd)	Northbound	351	25	341	26	344	27	353	27	-10	-7	2	-3%	-2%	0%
A503 Camden Road (south of Royal College St)	Northbound	563	32	599	32	617	32	633	33	35	53	69	6%	9%	12%
	Southbound	880	56	929	56	934	55	983	58	49	54	104	6%	6%	12%
A400 Camden Street (south of Camden Gardens)	Southbound	1203	65	1244	65	1252	64	1262	68	41	48	59	3%	4%	5%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	297	18	324	19	342	20	360	21	27	45	63	9%	15%	21%
	Southbound	268	27	246	27	242	28	253	24	-21	-25	-14	-8%	-9%	-5%
Hawley Road	Northbound	1014	56	1023	57	1026	58	1036	59	9	12	22	1%	1%	2%

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012		2021		2026		2041		2021	2026	2041	2021	2026	2041
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV						
A502 Chalk Farm Road (west of Hawley Street)	Northbound	87	10	88	10	88	10	89	9	0	0	1	0%	0%	2%
	Southbound	840	43	849	44	853	45	862	46	10	13	22	1%	2%	3%
Primrose Hill Road (south of Adelaide Road)	Northbound	341	15	331	12	333	12	341	10	-10	-7	1	-3%	-2%	0%
	Southbound	640	31	638	32	630	31	635	33	-2	-10	-5	0%	-2%	-1%
Avenue Road (south of B509 Adelaide Road)	Northbound	276	10	271	10	273	10	291	13	-5	-3	15	-2%	-1%	5%
	Southbound	885	22	923	22	922	22	919	23	38	37	35	4%	4%	4%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	618	52	660	55	651	54	661	54	42	33	43	7%	5%	7%
	Southbound	841	65	806	66	841	66	931	66	-36	0	90	-4%	0%	11%
Loudoun Road (south of Alexandra Place)	Northbound	542	10	529	8	548	8	546	10	-13	6	4	-2%	1%	1%
	Southbound	314	11	328	12	349	12	395	14	14	35	81	5%	11%	26%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	310	8	308	8	315	8	316	8	-2	5	6	-1%	2%	2%
	Southbound	568	15	563	15	566	15	535	14	-5	-2	-33	-1%	0%	-6%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	558	30	572	29	573	28	565	27	14	15	7	3%	3%	1%
	Southbound	252	35	272	33	272	33	278	33	20	20	26	8%	8%	10%

Table 6-21: Caledonian Road to Kilburn High Road north and south screenline traffic flows - PM peak hour

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012		2021		2026		2041		2021	2026	2041	2021	2026	2041
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV						
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	459	5	482	5	484	5	494	5	24	25	35	5%	6%	8%
	Southbound	484	4	514	5	526	5	579	6	30	42	95	6%	9%	20%
A5200 York Way (north of Vale Road)	Northbound	405	20	475	17	485	17	503	17	70	80	98	17%	20%	24%
	Southbound	366	10	392	10	397	10	409	10	25	31	42	7%	8%	12%
A5202 St Pancras Way (north of Baynes Street)	Southbound	555	6	562	8	583	8	614	9	7	28	59	1%	5%	11%
Randolph Street (East of Royal College Street)	Eastbound	242	1	244	1	256	1	283	1	2	14	41	1%	6%	17%
Royal College Street (south of Camden Rd)	Northbound	485	10	477	12	491	12	499	13	-8	7	15	-2%	1%	3%
A503 Camden Road (south of Royal College St)	Northbound	876	14	817	15	874	16	1017	17	-59	-2	141	-7%	0%	16%
	Southbound	636	20	644	16	655	16	663	16	8	19	27	1%	3%	4%
A400 Camden Street (south of Camden Gardens)	Southbound	763	16	721	11	739	11	754	11	-42	-24	-8	-6%	-3%	-1%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	474	17	469	13	471	12	475	12	-5	-3	1	-1%	-1%	0%
	Southbound	241	1	237	1	244	1	248	1	-4	3	7	-2%	1%	3%
Hawley Road	Northbound	1074	20	1054	17	1069	17	1094	17	-19	-5	20	-2%	0%	2%

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012		2021		2026		2041		2021	2026	2041	2021	2026	2041
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV						
A502 Chalk Farm Road (west of Hawley Street)	Northbound	221	11	229	11	229	11	229	11	8	8	8	4%	4%	4%
	Southbound	746	16	704	14	719	14	744	14	-42	-28	-3	-6%	-4%	0%
Primrose Hill Road (south of Adelaide Road)	Northbound	382	6	408	6	412	6	445	6	26	30	63	7%	8%	16%
	Southbound	370	6	381	6	392	6	403	6	11	22	33	3%	6%	9%
Avenue Road (south of B509 Adelaide Road)	Northbound	508	4	499	5	515	5	531	5	-8	7	23	-2%	1%	5%
	Southbound	639	7	627	6	621	5	632	2	-12	-18	-7	-2%	-3%	-1%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	724	40	768	43	787	43	853	43	45	64	130	6%	9%	18%
	Southbound	507	32	529	33	557	33	575	36	22	50	68	4%	10%	13%
Loudoun Road (south of Alexandra Place)	Northbound	425	6	408	5	426	6	465	5	-17	1	40	-4%	0%	9%
	Southbound	392	5	424	6	445	7	459	8	32	53	67	8%	13%	17%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	538	9	537	9	527	8	493	8	-1	-11	-46	0%	-2%	-8%
	Southbound	313	4	352	4	358	4	357	4	38	45	43	12%	14%	14%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	576	16	563	15	567	15	583	16	-12	-9	8	-2%	-2%	1%
	Southbound	499	8	481	8	471	8	460	8	-19	-28	-39	-4%	-6%	-8%

Figure 6-17: Traffic flow changes 2012 baseline vs 2021 future baseline - AM peak hour CLoHAM

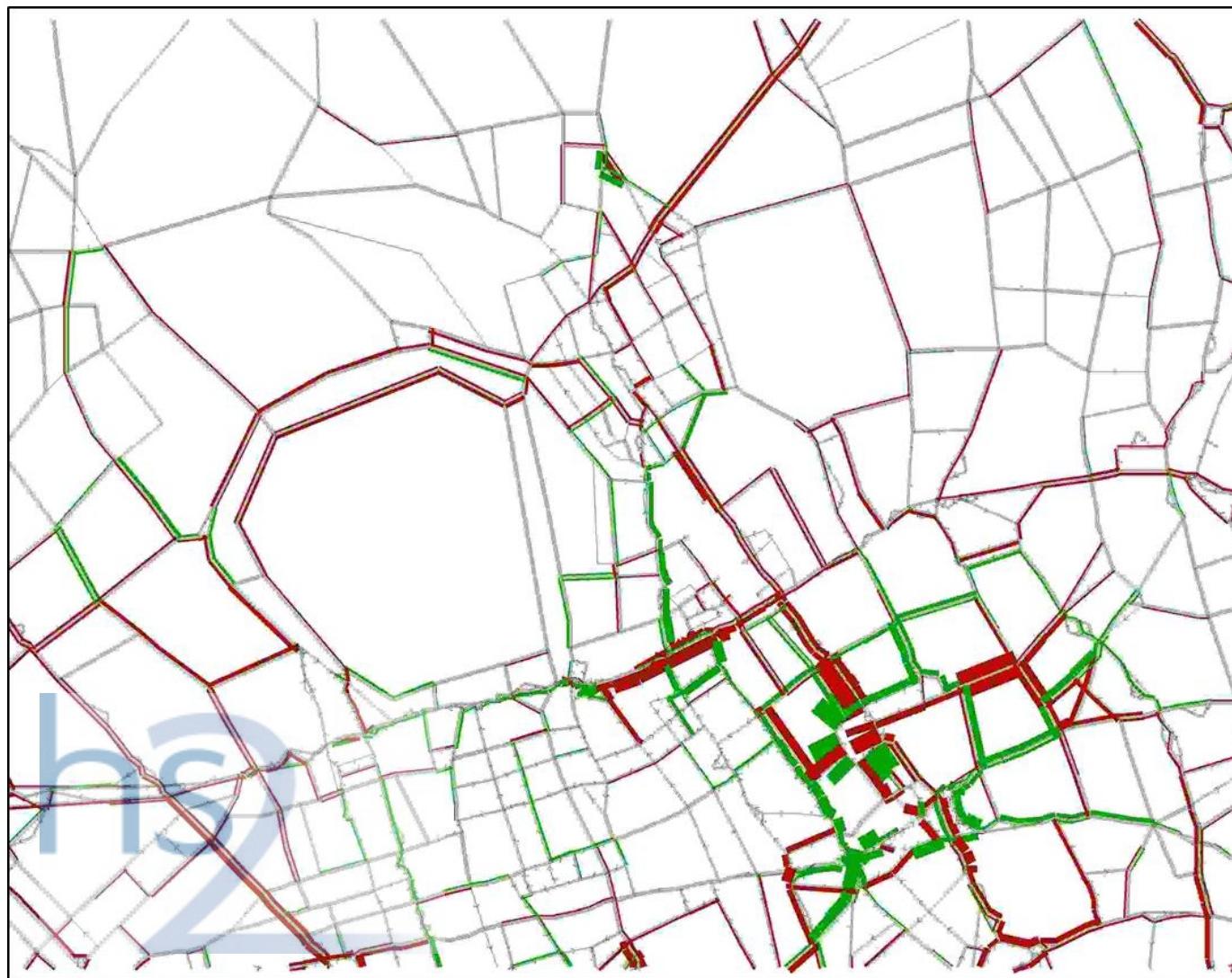


Figure 6-18: Traffic flow changes 2012 baseline vs 2021 future baseline - PM peak hour CLoHAM

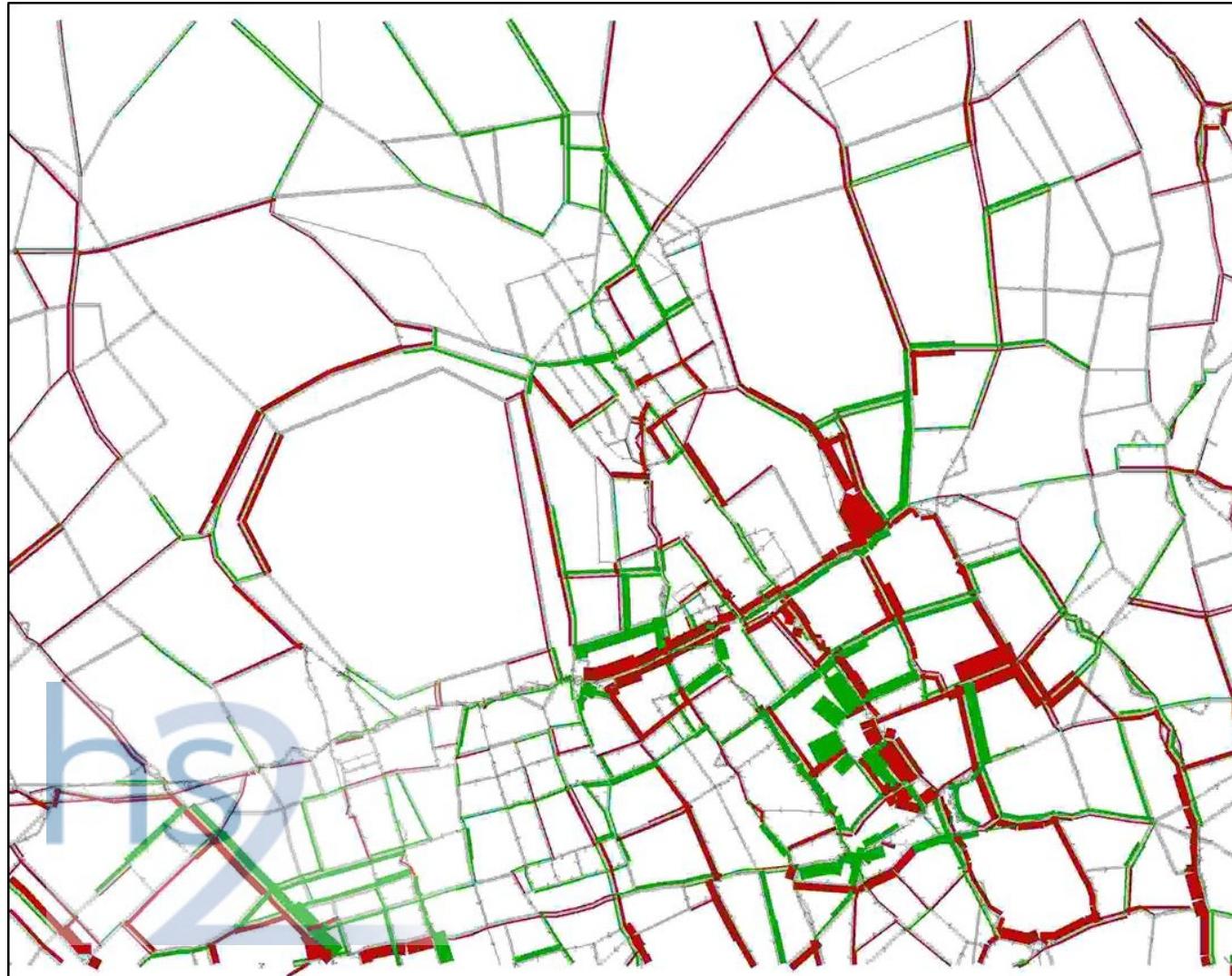


Figure 6-19: Traffic flow changes 2012 baseline vs 2026 future baseline - AM peak hour CLoHAM

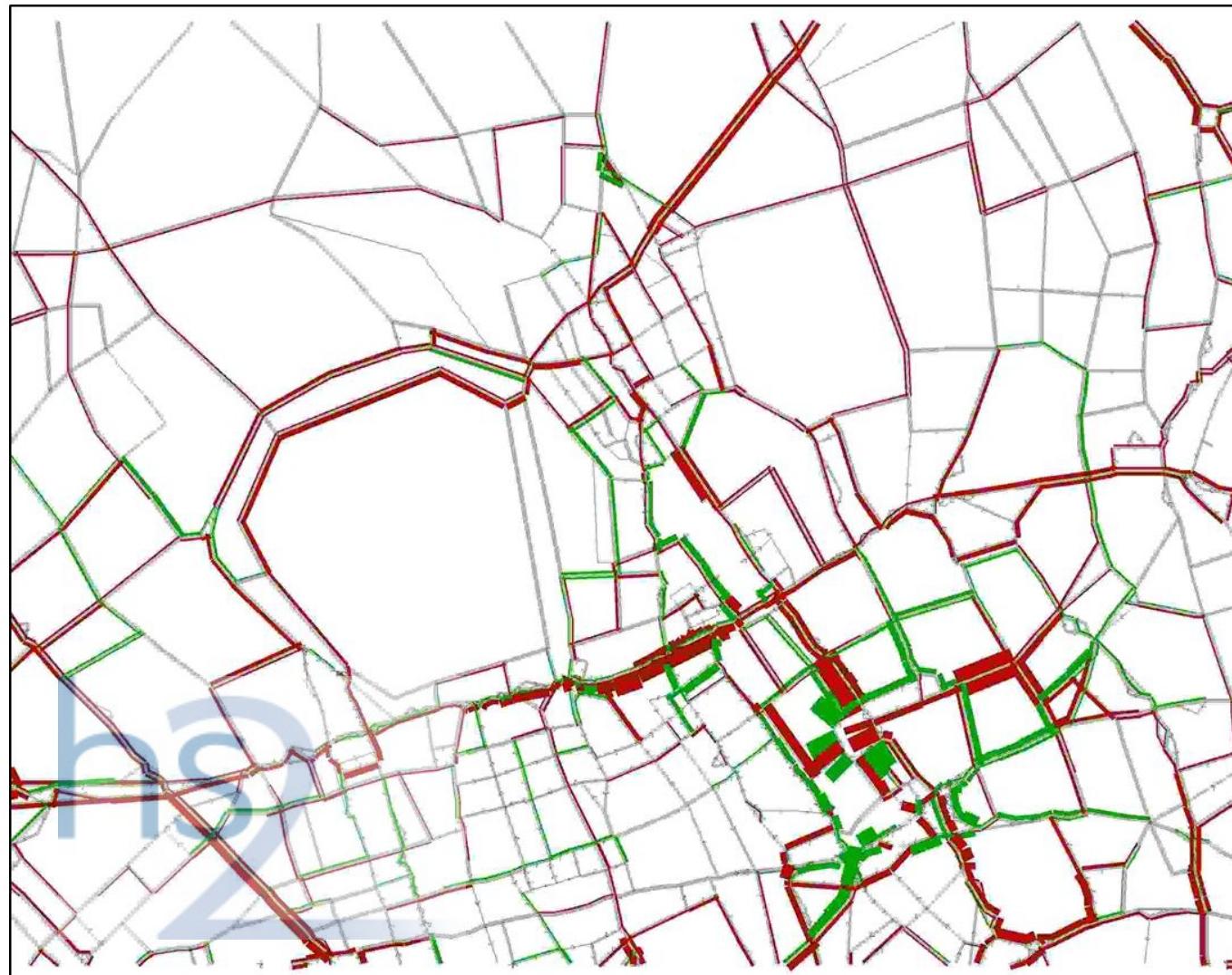


Figure 6-20: Traffic flow changes 2012 baseline vs 2026 future baseline - PM peak hour CLoHAM

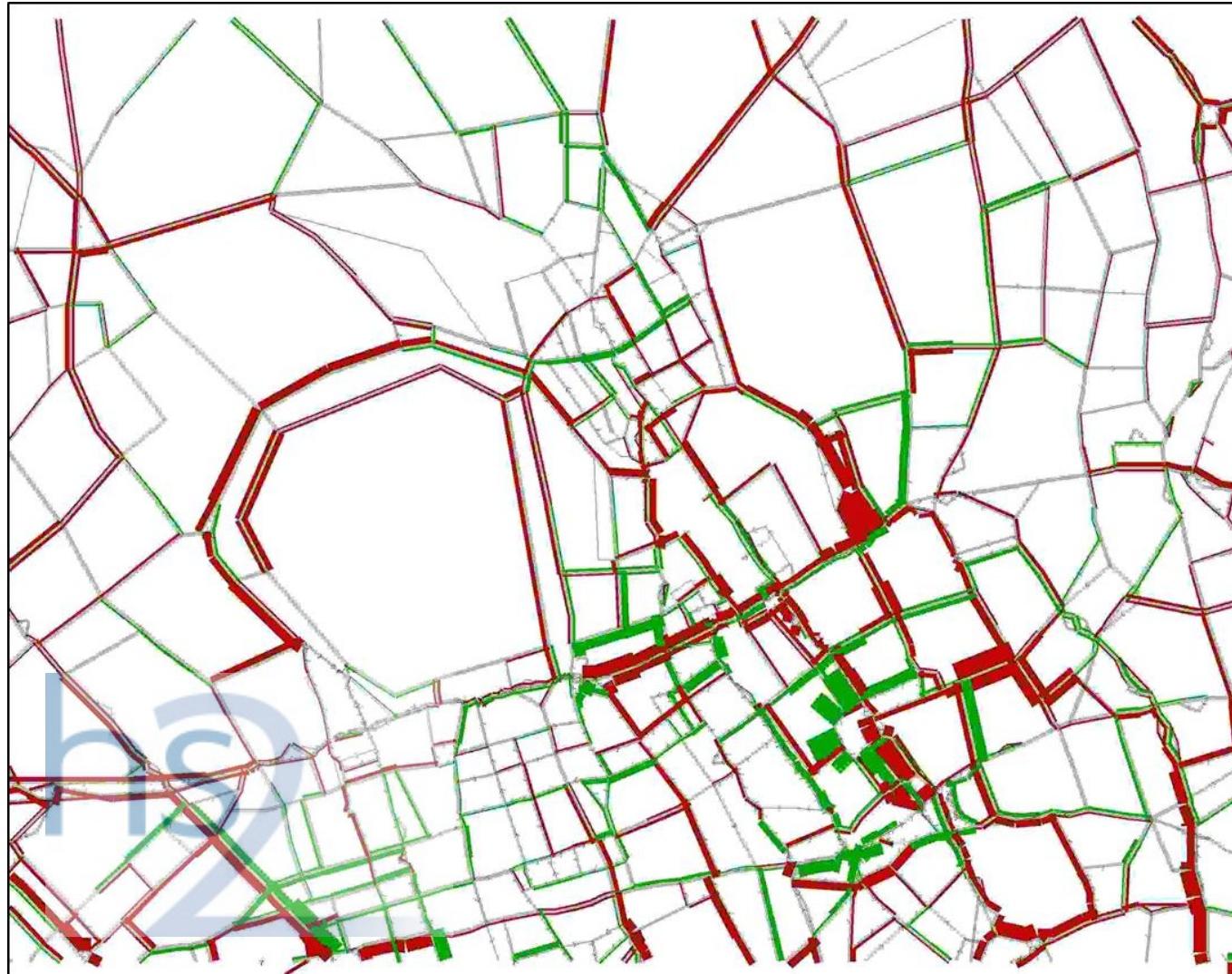


Figure 6-21: Traffic flow changes 2012 baseline vs 2041 future baseline - AM peak hour CLoHAM

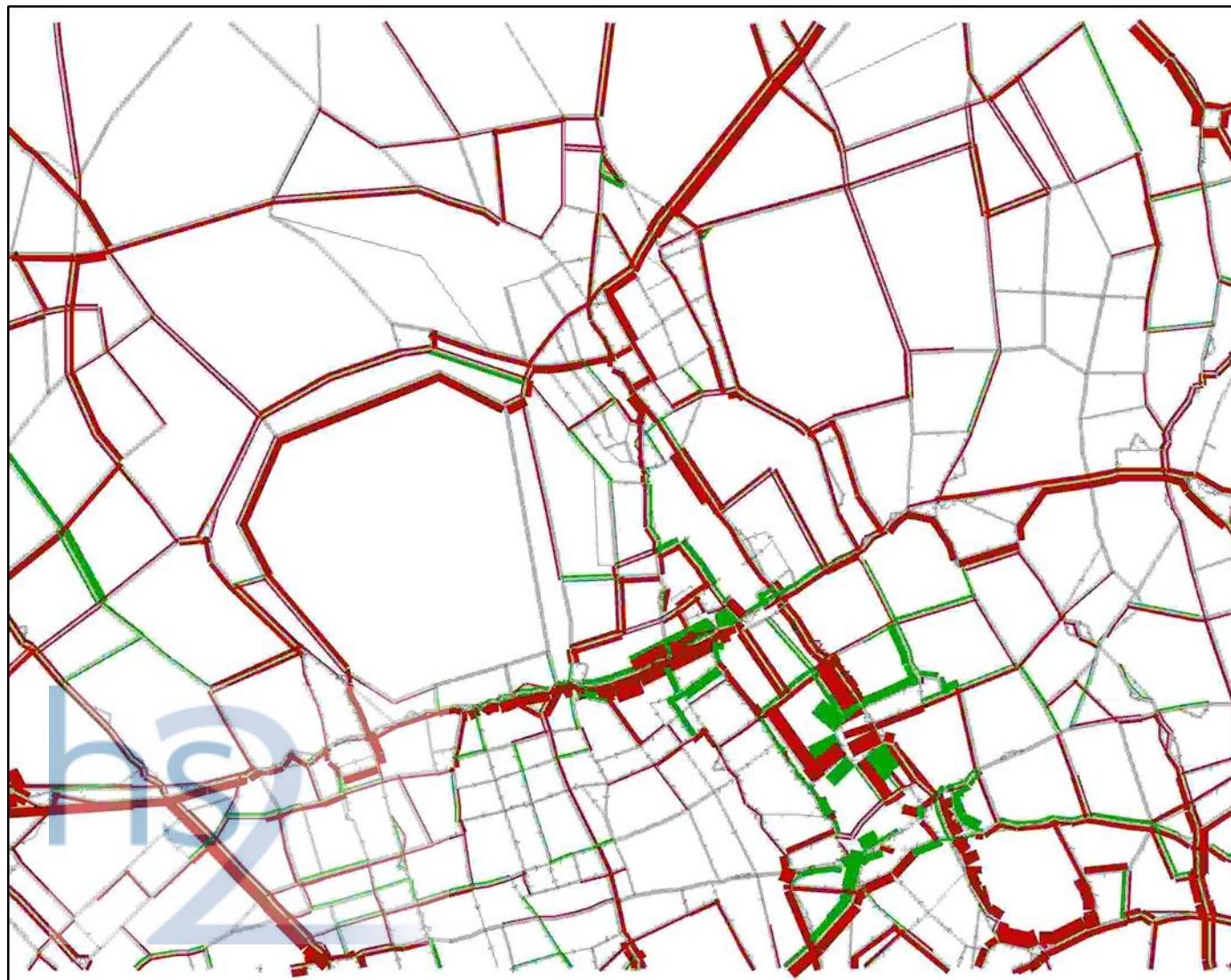
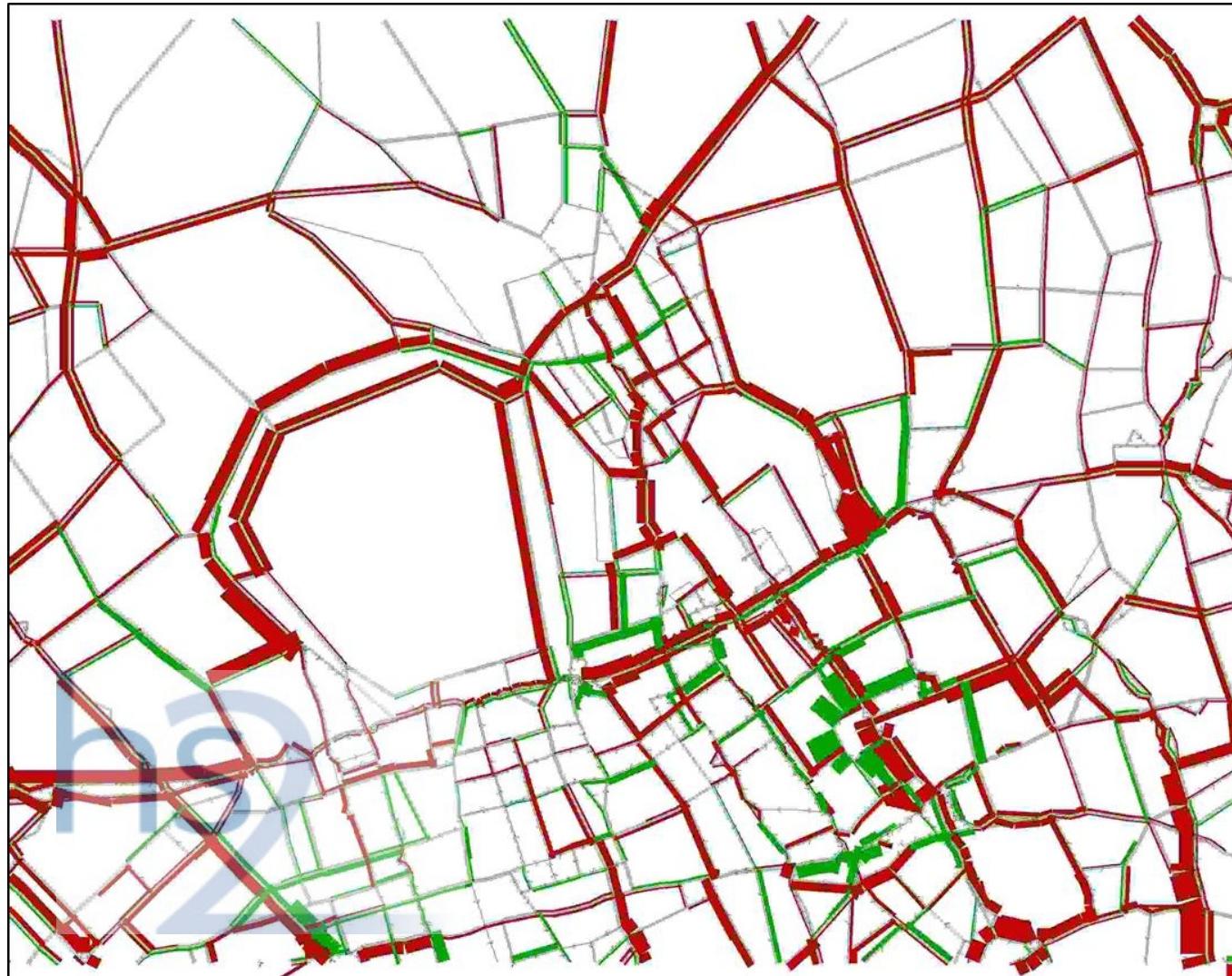


Figure 6-22: Traffic flow changes 2012 baseline vs 2041 future baseline - PM peak hour CLoHAM



*Camden and HS1 Link (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) strategic and local road network traffic flows for construction future baseline*

- 6.3.95 Traffic flows on strategic and local roads are set out in the tables below for baseline (2012) and the construction baseline (2021) for additional links within CFA2 and CFA3 that would be affected by the Proposed Scheme within the construction scenario. HS2 Phase 1 operation (2026) and HS2 phase 2 operations (2041) baseline flows are not included as there will be no operational impacts in these locations.
- 6.3.96 For assessment purposes Heavy Vehicles includes both HGVs and buses, and are represented as numbers of vehicles in the flow tables below. It should be noted that junction assessments below, and graphical outputs from the modelling, are shown in Passenger Car Units (PCUs) as is normal practice. For a typical road where HGVs make up 5% of the traffic flow, 100PCUs would represent 95 vehicles. Typically, overall vehicle numbers would be expected to be 3-5%, lower than PCUs.

Table 6-22: Camden and HS1 Link (CFA2) and Primrose Hill to Kilburn(Camden) (CFA 3) Future baseline traffic flows on key strategic and local roads - AM peak hour

		2012 Baseline		2021 Baseline		Percentage Change	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	321	10	338	11	5%	10%
	Southbound	728	43	756	44	4%	2%
A5200 York Way (north of Vale Road)	Northbound	280	38	293	40	5%	5%
	Southbound	573	38	600	39	5%	3%
A5202 St Pancras Way (north of Baynes Street)	Southbound	716	34	698	34	-3%	0%
Randolph Street (East of Royal College Street)	Eastbound	92	2	123	2	34%	0%
Royal College Street (south of Camden Rd)	Northbound	351	25	341	26	-3%	4%
A503 Camden Road (south of Royal College St)	Northbound	563	32	599	32	6%	0%
	Southbound	880	56	929	56	6%	0%
A400 Camden Street (south of Camden Gardens)	Southbound	1203	65	1244	65	3%	0%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	297	18	324	19	9%	6%
	Southbound	268	27	246	27	-8%	0%
Hawley Road	Northbound	1014	56	1023	57	1%	2%

		2012 Baseline		2021 Baseline		Percentage Change	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A502 Chalk Farm Road (west of Hawley Street)	Northbound	87	10	88	10	1%	0%
	Southbound	840	43	849	44	1%	2%
Primrose Hill Road (south of Adelaide Road)	Northbound	341	15	331	12	-3%	-20%
	Southbound	640	31	638	32	0%	3%
Avenue Road (south of B509 Adelaide Road)	Northbound	276	10	271	10	-2%	0%
	Southbound	885	22	923	22	4%	0%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	618	52	660	55	7%	6%
	Southbound	841	65	806	66	-4%	2%
Loudoun Road (south of Alexandra Place)	Northbound	542	10	529	8	-2%	-20%
	Southbound	314	11	328	12	4%	9%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	310	8	308	8	-1%	0%
	Southbound	568	15	563	15	-1%	0%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	558	30	572	29	3%	-3%
	Southbound	252	35	272	33	8%	-6%

6.3.97 It can be seen from Table 6-22 that the changes in future baseline flows in the AM peak hour are relatively modest. The highest absolute increase is on Avenue Road southbound to the south of Adelaide Road (an increase of 38 vehicles from 2012 to 2021, representing a 4.2% increase on the 2012 flow). Higher percentage changes occur on a few other links where the baseline traffic flow is relatively small.

Table 6-23: Camden and HS1 Link (CFA2) and Primrose Hill to Kilburn(Camden) (CFA 3) fFuture baseline traffic flows on key strategic and local roads - PM peak hour

		2012 Baseline		2021 Baseline		Percentage Change	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	459	5	482	5		0%
	Southbound	484	4	514	5	6%	25%
A5200 York Way (north of Vale Road)	Northbound	405	20	475	17	17%	-15%
	Southbound	366	10	392	10	7%	0%
A5202 St Pancras Way (north of Baynes Street)	Southbound	555	6	562	8	1%	33%
Randolph Street (East of Royal College Street)	Eastbound	242	1	244	1	1%	0%

		2012 Baseline		2021 Baseline		Percentage Change	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Royal College Street (south of Camden Rd)	Northbound	485	10	477	12	-2%	20%
A503 Camden Road (south of Royal College St)	Northbound	876	14	817	15	-7%	7%
	Southbound	636	20	644	16	1%	-20%
A400 Camden Street (south of Camden Gardens)	Southbound	763	16	721	11	-6%	-31%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	474	17	469	13	-1%	-24%
	Southbound	241	1	237	1	-2%	0%
Hawley Road	Northbound	1074	20	1054	17	-2%	-15%
A502 Chalk Farm Road (west of Hawley Street)	Northbound	221	11	229	11	4%	0%
	Southbound	746	16	704	14	-6%	-13%
Primrose Hill Road (south of Adelaide Road)	Northbound	382	6	408	6	7%	0%
	Southbound	370	6	381	6	3%	0%
Avenue Road (south of B509 Adelaide Road)	Northbound	508	4	499	5	-2%	25%
	Southbound	639	7	627	6	-2%	-14%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	724	40	768	43	6%	8%
	Southbound	507	32	529	33	4%	3%
Loudoun Road (south of Alexandra Place)	Northbound	425	6	408	5	-4%	-17%
	Southbound	392	5	424	6	8%	20%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	538	9	537	9	0%	0%
	Southbound	313	4	352	4	12%	0%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	576	16	563	15	-2%	-6%
	Southbound	499	8	481	8	-4%	0%

6.3.98 Changes in future baseline flows in the PM peak hour are also relatively modest. The highest absolute increase is on York Way northbound north of Vale Road (an increase of 70 vehicles from 2012 to 2021, representing a 17% increase on the 2012 flow). Again, higher percentage changes occur on a few other links where the baseline traffic flow is relatively small.

*Camden and HS1 Link (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) Junction performance 2021*

- 6.3.99 The following sections consider the performance of key junctions in the 2021 Baseline test compared to the 2012 Baseline. Performance of the junctions in the operational 2026 and 2041 Future Baseline tests is considered in the report on CFA1.

### Royal College Street / Camden Road

- 6.3.100 The model shows that only very modest changes in traffic flows, and hence, change in junction performance, are expected in 2021. The junction still operates within its capacity, albeit with noticeable queues on some arms.

Table 6-24: CFA2 Camden Town and HS1 Link forecast baseline performance at Royal College Street / Camden Road (signals)

	2012			2021		
	AM Peak (08:00-09:00)	Flow	RFC	Max queue	Flow	RFC
Camden Road (SB)	954	64	12	1034	68	12
Royal College Street (NB)	390	37	5	381	39	5
Camden Road (NB)	639	40	7	673	41	7
2012			2021			
PM Peak (17:00-18:00)	Flow	RFC	Max queue	Flow	RFC	Max queue
Camden Road (SB)	676	51	8	699	51	8
Royal College Street (NB)	510	48	6	503	48	6
Camden Road (NB)	935	60	11	877	56	10

### Kentish Town Road / Hawley Road

- 6.3.101 The model shows that only very modest changes in traffic flows, and hence junction performance, are expected in 2021. The junction operates with noticeable queues on all arms.

Table 6-25: CFA2 Camden Town and HS1 Link forecast baseline performance at Kentish Town Road / Hawley Road (signals)

	2012			2021		
	AM Peak (08:00-09:00)	Flow	RFC	Max queue	Flow	RFC
Kentish Town Road (SB)	561	87	7	557	83	7
Kentish Town Road (NB)	346	45	4	374	47	4
A502 Hawley Road	1208	77	13	1201	79	13

	2012			2021		
PM Peak (17:00-18:00)	Flow	RFC	Max queue	Flow	RFC	Max queue
Kentish Town Road (SB)	423	66	5	375	58	5
Kentish Town Road (NB)	526	74	6	516	73	6
A502 Hawley Road	1160	75	13	1128	73	12

### Camden High Street / Parkway

- 6.3.102 The model shows that only very modest changes in traffic flows, and hence junction performance, are expected in 2021. The junction still operates with noticeable queues on some arms.

Table 6-26: CFA2 Camden Town and HS1 Link forecast baseline performance at Camden High Street / Parkway (signals)

	2012			2021				
AM Peak (08:00-09:00)	Flow	RFC	Max queue	Flow	RFC	Max queue		
Camden High Street (NB)	566	16	5	584	16	5		
Parkway	722	23	10	752	25	11		
2012			2021					
PM Peak (17:00-18:00)	Flow	RFC	Max queue	Flow	RFC	Max queue		
Camden High Street (NB)	1010	28	10	980	28	10		
Parkway	827	26	12	788	25	11		

### Adelaide Road / Primrose Hill Road

- 6.3.103 The model shows that only very modest changes in traffic flows, and hence junction performance, are expected in 2021. The junction operates within its capacity during both peak hours, but with queues on all arms..

Table 6-27: CFA3 Primrose Hill to Kilburn (Camden) forecast baseline performance at Adelaide Road / Primrose Hill Road (signals)

	2012			2021		
AM Peak (08:00-09:00)	Flow	RFC	Max queue	Flow	RFC	Max queue
Primrose Hill Road (SB)	655	75	7	662	74	7
Adelaide Road (WB)	444	53	5	449	56	5
Primrose Hill Road (NB)	357	49	4	345	46	4
Adelaide Road (EB)	721	83	8	723	87	8

	2012			2021		
<b>PM Peak (17:00-18:00)</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>
Primrose Hill Road (SB)	368	43	4	359	42	4
Adelaide Road (WB)	330	40	3	333	40	4
Primrose Hill Road (NB)	390	55	4	416	58	4
Adelaide Road (EB)	693	78	7	705	80	7

### Adelaide Road / Haverstock Hill

- 6.3.104 The model shows that only very modest changes in traffic flows, and hence junction performance, are expected in 2021. The junction operates within its capacity during both peak hours, but with queues on the Adelaide Road arm.

Table 6-28: CFA3 Primrose Hill to Kilburn (Camden) forecast baseline performance at Adelaide Road / Haverstock Hill (signals)

	2012			2021		
<b>AM Peak (08:00-09:00)</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>
Haverstock Hill	321	16	2	322	17	2
Chalk Farm Road	531	20	1	536	20	1
Adelaide Road	624	53	7	629	51	7
	2012			2021		
<b>PM Peak (17:00-18:00)</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>
Haverstock Hill	329	17	3	302	15	2
Chalk Farm Road	449	17	1	455	17	1
Adelaide Road	652	55	7	649	55	7

### Haverstock Hill / England's Lane

- 6.3.105 The model shows that only very modest changes in traffic flows, and hence junction performance, are expected in 2021. The southbound Haverstock Hill arm of this junction operates beyond practical capacity in the morning peak hour, with modest queuing resulting, in both 2012 and 2021. Other arms, and all arms in the PM peak period, operate within capacity during both AM and PM peak hours.

Table 6-29: CFA3 Primrose Hill to Kilburn (Camden) forecast baseline performance at Haverstock Hill / England's Lane (signals)

	2012			2021		
<b>AM Peak (08:00-09:00)</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>
Haverstock Hill (SB)	650	102	8	636	102	8

Haverstock Hill (NB)	221	31	2	245	34	3
England's Lane	116	35	2	112	34	2
<b>2012</b>				<b>2021</b>		
<b>PM Peak (17:00-18:00)</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>
Haverstock Hill (SB)	577	86	7	551	81	7
Haverstock Hill (NB)	208	29	3	206	29	3
England's Lane	144	44	2	112	34	2

### Adelaide Road / Avenue Road

- 6.3.106 The model shows that only very modest changes in traffic flows, and hence junction performance, are expected in 2021. The junction operates within its capacity during both peak hours.

Table 6-30: CFA3 Primrose Hill to Kilburn (Camden) forecast baseline performance at Adelaide Road / Avenue Road (signals)

	<b>2012</b>			<b>2021</b>		
<b>AM Peak (08:00-09:00)</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>
Avenue Road (SB)	2542	46	8	2541	45	8
Adelaide Road (WB)	758	33	9	761	35	9
Avenue Road (NB)	288	19	3	283	17	3
	<b>2012</b>			<b>2021</b>		
<b>PM Peak (17:00-18:00)</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>
Avenue Road (SB)	2112	40	7	2127	41	6
Adelaide Road (WB)	609	27	7	665	29	8
Avenue Road (NB)	516	33	6	507	33	6

### Finchley Road / Avenue Road

- 6.3.107 The model shows that only very modest changes in traffic flows, and hence junction performance, are expected in 2021. The junction operates within its capacity during both peak hours.

Table 6-31: CFA3 Primrose Hill to Kilburn (Camden) forecast baseline performance at Finchley Road / Avenue Road (signals)

	<b>2012</b>			<b>2021</b>		
<b>AM Peak (08:00-09:00)</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>	<b>Flow</b>	<b>RFC</b>	<b>Max queue</b>
Finchley Road (SB)	1495	31	12	1498	31	12
College Crescent	767	21	0	766	21	0
Finchley Road (NB)	1432	49	17	1439	48	17

	2012			2021		
PM Peak (17:00-18:00)	Flow	RFC	Max queue	Flow	RFC	Max queue
Finchley Road (SB)	1189	25	10	1195	25	10
College Crescent	588	16	0	603	17	0
Finchley Road (NB)	1963	42	17	2008	43	17

### Boundary Road / Finchley Road

- 6.3.108 The model shows that only very modest changes in traffic flows, and hence junction performance, are expected in 2021. The junction operates within its capacity during both peak hours.

Table 6-32: CFA3 Primrose Hill to Kilburn (Camden) forecast baseline performance at Boundary Road / Finchley Road (signals)

	2012			2021		
AM Peak (08:00-09:00)	Flow	RFC	Max queue	Flow	RFC	Max queue
Finchley Road (SB)	938	26	7	902	25	7
Boundary Road (WB)	72	26	1	74	25	1
Finchley Road (NB)	776	21	5	799	22	6
Boundary Road (EB)	191	68	3	199	66	4
	2012			2021		
PM Peak (17:00-18:00)	Flow	RFC	Max queue	Flow	RFC	Max queue
Finchley Road (SB)	574	16	4	596	16	4
Boundary Road (WB)	114	41	2	100	36	2
Finchley Road (NB)	905	25	6	957	26	7
Boundary Road (EB)	172	62	3	170	61	3

### Boundary Road / Loudoun Road

- 6.3.109 The model shows that only very modest changes in traffic flows, and hence junction performance, are expected in 2021. The junction operates within its capacity during both peak hours.

Table 6-33: CFA3 Primrose Hill to Kilburn (Camden) forecast baseline performance at Boundary Road / Loudoun Road (signals)

	2012			2021		
AM Peak (08:00-09:00)	Flow	RFC	Max queue	Flow	RFC	Max queue
Loudoun Road (SB)	326	18	0	341	18	0
Boundary Road (WB)	140	8	0	139	8	0

Loudoun Road (NB)	16	1	0	7	0	0
Boundary Road (EB)	352	35	0	362	35	0
<b>2012</b>				<b>2021</b>		
PM Peak (17:00-18:00)	Flow	RFC	Max queue	Flow	RFC	Max queue
Loudoun Road (SB)	399	22	0	432	24	0
Boundary Road (WB)	239	13	0	228	13	0
Loudoun Road (NB)	3	0	0	1	0	0
Boundary Road (EB)	350	29	0	352	29	0

### *Euston - Station and Approach (CFA 1) junction performance 2026 and 2041*

- 6.3.110 The operation of the six key junctions which form the main access routes from the local road network to Euston station have been analysed for the 2026 and 2041 future baseline conditions. These junctions are:
- A501 Euston Road/Melton Street/Gordon Street
  - A501 Euston Road / A4200 Upper Woburn Place / Euston Square
  - A501 Euston Road / Churchway / Dukes Road
  - A4200 Eversholt Street / Grafton Place / Euston bus station
  - A400 Hampstead Road/Drummond Street
  - A400 Hampstead Road / Cardington Street
- 6.3.111 The modelling results for the junction of A501 Euston Road with Melton Street and Gordon Street, A4200 Upper Woburn Place and Euston Square and Churchway and Dukes Road as well as the junction of A4200 Eversholt Street with Grafton Place and the Euston bus station have been extracted from the TRANSYT junction model.
- 6.3.112 The 2012 baseline scenario for junction of A400 Hampstead Road with Drummond Street has been modelled in LINSIG. However, the 2026 and 2041 future baseline scenarios have been modelled in TRANSYT as this junction was included in the Euston Circus (new layout) model received from TfL.
- 6.3.113 The junction of A400 Hampstead Road with Cardington Street has been modelled in LINSIG for all baseline scenarios.
- 6.3.114 All results are provided in terms of degree of saturation (DOS) and mean maximum queue (MMQ) measured in passenger car units (PCU).

## A501 Euston Road / Melton Street / Gordon Street

- 6.3.115 Table 6-34 shows the 2026 and 2041 future baseline operation of the A501 Euston Road junction with Melton Street and Gordon Street, during the weekday AM and PM peak hours. The junction has been modelled with a cycle time of 96 seconds. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate a system of on-street adaptive control where signal timings are optimised to traffic flow. This is likely to use the on-street Split Cycle Offset Optimisation Tool (SCOOT).
- 6.3.116 Table 6-34 shows that during the AM peak hour, capacity on the approaches to the junction reduces on Melton Street (ahead / right lane) and on A501 Euston Road east (left / ahead lane) between 2012 baseline and 2026 and 2041 future baseline scenarios. For both approaches, the DoS is over 85% and is at 98% on the Melton Street (ahead / right lane) approach to the junction. The DoS on Gordon Street increase to over 89% in the 2041 future baseline. The level of queueing recorded on these approaches to the junction during the 2026 and 2041 future baseline scenarios can, however, be accommodated within the available link length.
- 6.3.117 During the PM peak hour, all approaches to the junction are within theoretical capacity (100% DoS) for the 2026 future baseline scenarios. However, for the 2041 future baseline scenario, DoS on Melton Street (ahead / right lane) and Gordon Street increases to over 100%. The level of queueing on Gordon Street will result in delays to vehicles using this approach to the junction.
- 6.3.118 Relative to the 2012 baseline scenario, the available capacity at the junction is reduced in both the 2026 and 2041 future baseline scenarios for both the AM and PM peak hours.

Table 6-34: A501 Euston Road/Melton Street/Gordon Street peak hour flows, DOS and queue lengths (PCU)

<b>AM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
Melton Street - left/ahead	335	53%	8	359	55%	8	462	41%	6
Melton Street - ahead/right	253	72%	7	353	90%	13	306	98%	19
A501 Euston Road east - left/ahead	852	75%	23	987	87%	16	933	91%	27
A501 Euston Road east - ahead	395	68%	11	543	76%	9	425	81%	11
Gordon Street - left/ahead	363	78%	12	385	77%	11	444	89%	15
A501 Euston Road west - left/ahead	469	50%	24	445	44%	8	430	47%	22
A501 Euston Road west - left/ahead	1,258	60%	9	1,219	57%	23	1,145	57%	8
<b>PM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
Melton Street - left/ahead	292	48%	6	322	93%	12	323	96%	14
Melton Street - ahead/right	251	35%	5	290	48%	7	362	41%	6
A501 Euston Road east - left/ahead	1,085	78%	15	1,030	91%	27	935	91%	15
A501 Euston Road east - ahead	336	47%	4	386	66%	6	412	78%	8
Gordon Street - left/ahead	474	66%	11	544	94%	20	617	107%	43
A501 Euston Road west - left/ahead	640	70%	26	712	76%	17	717	82%	19
A501 Euston Road west - left/ahead	1,176	87%	19	1,336	63%	27	1,333	67%	28

## A501 Euston Road / A4200 Upper Woburn Place / Euston Square

- 6.3.119 Table 6-35 shows the 2026 and 2041 future baseline operation of the A501 Euston Road junction with A4200 Upper Woburn Place and Euston Square (A4200 Eversholt Street), in the weekday AM and PM peak hour. The junction has been modelled using TRANSYT with a cycle time of 96 seconds for both the AM and PM peak hours. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate the likely on-street optimisation process using SCOOT.
- 6.3.120 Table 6-35 shows that during the AM peak hour of the 2026 future baseline scenario, all approaches to the junction of A501 Euston Road with A4200 Upper Woburn Place and Euston Square have a DoS lower than 85%. For the PM peak hour, the approaches to the junction along A4200 Upper Woburn Place (left / ahead lane) and A501 Euston Road east (right turn lane) have a DoS of 87% and 88% respectively. The queueing on these two approaches can be accommodated within the available link length.
- 6.3.121 For the 2041 future baseline scenario during the AM peak hour, the approach to the junction along A4200 Upper Woburn Place (left / ahead lane) has a DoS of 86%. This is the highest recorded at the junction during this scenario. The queue of 15 PCU on this approach can be accommodated within the available link length.
- 6.3.122 For the PM peak hour of the 2041 future baseline scenario, the DoS on two approaches to the junction exceeds 90%. These approaches are A501 Euston Road east (left / ahead lane) and A4200 Upper Woburn Place (left / ahead lane). The queues on these approaches are 17 PCU and 24 PCU respectively. The 24 PCU queue on A4200 Upper Woburn Place may result in some delay for drivers.
- 6.3.123 Relative to the 2012 baseline scenario, the available capacity at the junction is reduced in both the 2026 and 2041 future baseline scenarios for both the AM and PM peak hours.

Table 6-35: A501 Euston Road/A4200 Upper Woburn Place/Euston Square peak hour flows, DOS and queue lengths (PCU)

<b>AM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
Euston Square - ahead	265	56%	8	401	65%	4	430	72%	5
A501 Euston Road east - ahead	801	64%	20	887	73%	20	848	64%	15
A501 Euston Road east - left/ahead	539	85%	17	493	80%	13	530	79%	12
A4200 Upper Woburn Place - left/ahead	408	76%	10	471	82%	14	475	86%	15
A4200 Upper Woburn Place - ahead	70	42%	2	70	25%	2	70	27%	2
A501 Euston Road west - right	290	65%	9	311	84%	10	281	82%	8
A501 Euston Road west - ahead	1,326	51%	34	1,340	55%	7	1,268	51%	9
<b>PM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
Euston Square - ahead	234	47%	5	294	41%	2	293	34%	2
A501 Euston Road east - ahead	954	64%	24	864	74%	20	848	86%	24
A501 Euston Road east - left/ahead	500	67%	13	470	79%	12	465	92%	16
A4200 Upper Woburn Place - left/ahead	450	83%	12	594	90%	19	730	93%	24
A4200 Upper Woburn Place - ahead	62	34%	2	62	18%	1	62	13%	1
A501 Euston Road west - right	212	58%	6	268	84%	8	269	88%	9
A501 Euston Road west - ahead	1,484	57%	17	1,588	71%	21	1,601	79%	20

## A501 Euston Road / Churchway / Dukes Road

- 6.3.124 Table 6-36 shows the existing operation of the A501 Euston Road junction with Churchway and Dukes Road, in the weekday AM and PM peak hour. The junction has been modelled using TRANSYT with a cycle time of 96 seconds for both the AM and PM peak hours. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate the likely on-street optimisation process using SCOOT.
- 6.3.125 The results in Table 6-36 show that for the AM peak hour, the operation of the junction will improve between the 2012 baseline scenario and the 2026 and 2041 future baseline scenarios. The main improvement is a reduction in the DoS on Churchway from 96% in the 2012 baseline scenario and to 78% and 76% in the 2026 future baseline scenario and 2041 future baseline scenarios respectively. However, the DoS on the A501 Euston Road west increases from 48% in the future baseline scenario to 75% in the 2026 future baseline scenario and 76% in the 2041 future baseline scenario.
- 6.3.126 For the PM peak hour, the DoS also improves on Churchway between the 2012 baseline scenario and the 2026 and 2041 future baseline scenarios. However, on A501 Euston Road east (ahead / right lane), the DoS does increase from 69% in the 2012 baseline scenario to 85% in the 2026 future baseline scenario and 80% in the 2041 future baseline scenario. On A501 Euston Road west, the DoS increases from 78% in the 2012 baseline scenario to 86% in the 2026 future baseline scenario and 83% in the 2041 future baseline scenario. The level of queueing on these approaches to the junction can be accommodated within the available link length.
- 6.3.127 These results indicate that the junction the junction operation is acceptable and could be further improved through future optimisation.

Table 6-36: A501 Euston Road/Churchway/Dukes Road peak hour flows, DOS and queue lengths (PCU)

<b>AM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
Churchway - left/ahead/right	235	96%	12	260	78%	9	253	76%	8
A501 Euston Road east - ahead/right	406	84%	9	388	77%	11	429	78%	12
A501 Euston Road east - left/ahead	587	45%	4	736	60%	2	583	48%	2
A501 Euston Road east bus lane - ahead	409	30%	3	434	34%	1	479	36%	1
Dukes Road - left/ahead/right	30	4%	0	30	9%	1	30	9%	1
A501 Euston Road west - left/ahead	1,334	48%	19	1,347	75%	30	1,284	76%	28
<b>PM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
Churchway - left/ahead/right	236	90%	10	275	82%	9	253	80%	9
A501 Euston Road east - ahead/right	369	69%	9	351	86%	12	337	80%	10
A501 Euston Road east - left/ahead	779	57%	8	827	68%	10	689	55%	7
A501 Euston Road east bus lane - ahead	432	32%	4	382	30%	1	413	32%	2
Dukes Road - left/ahead/right	50	13%	1	30	9%	1	30	9%	1
A501 Euston Road west - left/ahead	1,475	78%	14	1,595	86%	31	1,601	83%	29

### **A4200 Eversholt Street / Grafton Place / Euston bus station**

- 6.3.128 Table 6-37 shows the existing operation of the A4200 Eversholt Street junction with Grafton Way and Euston bus station, in the weekday AM and PM peak hour. The junction has been modelled using TRANSYT with a cycle time of 96 seconds for both the AM and PM peak hours. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate the likely on-street optimisation process using SCOOT.
- 6.3.129 The results show that despite an increase in the DoS on the Euston bus station approach during the AM peak hour from 42% in the 2012 baseline to 84% in the 2026 future baseline and 83% in the 2041 future baseline, the overall operation of the junction improves between 2012 and the two future baseline scenarios. The DoS on the approaches to the junction along A4200 Eversholt Street and Grafton Place reduce from 90% or over to below 90%. While for the 2026 future baseline scenario this only reduces to 87%, the queue of 13 PCU can be accommodated within the available link length.
- 6.3.130 Similarly, the overall operation of the junction improves between the 2012 baseline scenario and the 2026 and 2041 future baseline scenarios with reductions in the DoS on A4200 Eversholt Street and Grafton Way. The DoS is below 85% for all approaches for both scenarios. However, the DoS on the Euston bus station approach does increase from 43% in the 2012 baseline to 73% in the 2026 future baseline scenario and 83% for the 2041 future baseline scenario.
- 6.3.131 These results indicate that the junction operation is acceptable and could be further improved through future optimisation.

Table 6-37: A4200 Eversholt Street/Grafton Place/Euston Bus Station peak hour flows, DOS and queue lengths (PCU)

<b>AM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
A4200 Eversholt Street - left/ahead	301	92%	12	404	87%	13	406	82%	12
Grafton Place - left/right	177	90%	8	176	78%	6	183	76%	6
Euston Square - ahead/right	335	65%	10	398	61%	3	455	67%	2
Euston Bus station - left/ahead/right	202	42%	5	289	84%	10	257	83%	9
<b>PM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
A4200 Eversholt Street - left/ahead	266	99%	14	343	74%	10	338	62%	9
Grafton Place - left/right	196	98%	11	196	73%	6	186	80%	7
Euston Square - ahead/right	346	72%	8	452	69%	6	605	83%	10
Euston Bus station - left/ahead/right	192	43%	5	213	73%	7	213	83%	8

### A400 Hampstead Road/Drummond Street

- 6.3.132 Table 6-38 shows the existing operation of the A400 Hampstead Road junction with Drummond Street, in the weekday AM and PM peak hour. The 2012 baseline scenario was modelled using LINSIG with a cycle time of 80 seconds. For the 2026 and 2041 future baseline scenarios, the junction has been modelled using TRANSYT with a cycle time of 96 seconds for both the AM and PM peak hours. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate the likely on-street optimisation process using SCOOT.
- 6.3.133 The results in Table 6-38 show that during the AM peak hour, all approaches to the junction of A400 Hampstead Road will operate with a DoS below 85% for the 2026 future baseline scenario, similarly to the 2012 baseline scenarios. However, for the 2041 future baseline scenario, the DoS on the A400 Hampstead Road north (left / ahead lane) approach will increase to 90%. However, the queue of 28 PCU can be accommodated within the available link length.
- 6.3.134 For the PM peak hour, the junction will operate with adequate spare capacity on all approaches to the junction for the 2012 baseline scenario and the 2026 and 2041 future baseline scenarios. The DoS on all approaches is well below 85% and the maximum queue recorded 9 PCU on the A400 Hampstead Road south approach to the junction (for both the 2026 and 2041 future baseline scenarios).

Table 6-38: A400 Hampstead Road/Drummond Street peak hour flows, DOS and queue lengths (PCU)

<b>AM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
A400 Hampstead Road north - left / ahead	457	47%	7	996	83%	22	1,048	90%	28
A400 Hampstead Road north - ahead	439	47%	7	224	26%	4	244	27%	4
Drummond Street east - left / ahead / right	142	46%	3	205	82%	7	242	84%	9
A400 Hampstead Road south - left / ahead	183	19%	2	551	24%	6	593	27%	6
Drummond Street west - left / ahead	101	33%	2	101	42%	3	113	40%	3
<b>PM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
A400 Hampstead Road north - left / ahead	348	34%	5	501	45%	8	485	45%	8
A400 Hampstead Road north - ahead	267	28%	4	210	25%	3	205	25%	3
Drummond Street east - left / ahead / right	184	72%	5	156	45%	4	161	44%	4
A400 Hampstead Road south - left / ahead	193	20%	2	601	32%	9	613	34%	9
Drummond Street west - left / ahead	95	38%	2	131	39%	3	142	40%	4

### A400 Hampstead Road / Cardington Street

- 6.3.135 Table 6-39 shows the existing operation of the A400 Hampstead Road junction with Cardington Street, in the weekday AM and PM peak hour. The junction was modelled using LINSIG with a cycle time of 72 seconds. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate the likely on-street optimisation process using SCOOT.
- 6.3.136 The results show that for the AM peak hour, the junction will operate with adequate spare capacity on all approaches to the junction for the 2012 baseline scenario and the 2026 and 2041 future baseline scenarios. The DoS on all approaches is well below 85% and the maximum queue recorded 7 PCU on the A400 Hampstead Road north (ahead lane) approach to the junction (for the 2041 future baseline scenario).
- 6.3.137 Similarly for the PM peak hour, the junction will operate with adequate spare capacity on all approaches to the junction for the 2012 baseline scenario and the 2026 and 2041 future baseline scenarios. The DoS on all approaches is well below 85% and the maximum queue recorded 9 PCU on the A400 Hampstead Road south approach to the junction (for the 2026 and 2041 future baseline scenarios).
- 6.3.138 These results indicate that the junction operation is acceptable.

Table 6-39: A400 Hampstead Road/Cardington Street peak hour flows, DOS and queue lengths (PCU)

<b>AM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
A400 Hampstead Road north - left / ahead	443	32%	3	643	44%	6	671	47%	6
A400 Hampstead Road north - ahead	916	62%	10	643	47%	6	671	50%	7
Cardington Street - left / right	131	52%	3	169	60%	4	205	67%	5
A400 Hampstead Road south - ahead / right	496	34%	4	491	64%	4	506	36%	4
<b>PM peak hour</b>	<b>2012</b>			<b>2026</b>			<b>2041</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
A400 Hampstead Road north - left / ahead	335	29%	3	523	38%	5	532	39%	5
A400 Hampstead Road north - ahead	561	46%	6	524	41%	5	533	41%	5
Cardington Street - left / right	200	40%	4	232	64%	5	247	68%	6
A400 Hampstead Road south - ahead / right	832	68%	12	760	65%	9	769	57%	9

### *Accidents and safety*

- 6.3.139 A full network safety analysis has been undertaken for 2012 in the baseline assessment within this report. It is generally accepted that with increased traffic flows alongside an increase in pedestrian and cyclist activity on street, the risk of accidents is always present. Therefore accident risk reviews are an on-going remit to reduce accidents and risk. Based on the changes due to the highway network or travel demands as a result of the future baseline network, the level of risk identified in 2012 baseline are still relevant.

## 6.4 Euston- Station and Approach (CFA1) construction impact assessment

### Euston- Station and Approach (CFA1) Proposed Scheme construction description

- 6.4.2 The construction period for the Proposed Scheme is programmed for 2016 to 2026. The base year for the assessment of the construction impacts has been chosen at 2021 to provide an assessment of the future year demand based on the London Transportation Studies (LTS) model to 2021 as a representation year. The forecasts have then been overlaid on 2021, with, as relevant, overlapping activities considered (in both area of importance and timing) in combination. Where an assessment for a construction year other than 2021 has been undertaken, this has been defined.
- 6.4.3 When the Proposed Scheme is completed, Euston station will provide a total of 24 platforms compared with 18 in the existing station. The existing conventional station loses three of its 18 platforms on the west side of the station. The remaining 15 platforms will be reconfigured to create 13 long platforms. The station can then function with a four track, flat approach instead of the current six track, grade separated approach.
- 6.4.4 The reduction in the number of approach tracks will create sufficient space to construct the new high speed approach to the station within the existing rail corridor. The station itself will be widened to the west by demolishing buildings as far as Cobourg Street. This will create space for 11 platforms to be built for the high speed side of the station.
- 6.4.5 Owing to the level of the A400 Hampstead Road overbridge to the north of the station, the HS2 tracks and platforms will be four metres lower than the conventional tracks in order to create the necessary headroom below the bridge. This will allow the HS2 concourse to be situated above the HS2 platforms and to link the existing conventional concourse at the same level.
- 6.4.6 The level of the HS2 platforms will also be compatible with the LU concourse level, allowing straightforward transfers between the two without the need to pass through the main HS2/conventional concourse above.
- 6.4.7 To cater for the additional passenger demand passing through Euston station, the LU facilities will be extended. To reduce the need for wholesale reconstruction of the conventional station, the LU concourse will be extended to the south into the existing station car park outside the existing footprint of the station. Improved connections between the conventional station and LU concourse will be provided by constructing an end of platform link passageway that will feed directly into the new enlarged LU concourse. These passageways will be built in the basement of the existing station, which is currently used for servicing the station. The servicing arrangements will therefore need to be reconfigured.

- 6.4.8 A parcels deck, which is now used partially for train servicing and partially as rail-related office accommodation, is located above the existing station. This parcels deck will be reconfigured and extended over the HS2 platforms to form a new service deck and will house the majority of the station and train servicing requirements.

### *Construction activities and phasing*

- 6.4.9 A complete description of the works associated with the Proposed Scheme in the Euston - Station and Approach area is provided in Section 2 of the Environmental Statement, Volume 2, Report 1.
- 6.4.10 The construction works will be carried out throughout the site for the majority of the construction period. The overall programme has been outlined on a year by year basis. Table 6-40 shows the key programme milestones for the duration of the construction works.

Table 6-40: Key construction programme milestones

Area	Activity	Date
General	Commence NR enabling works	Q2 2015
General	Commence main enabling works	Q3 2015
General	Commence HS2 main works (demolition and construction)	Q1 2016
Station	Close basement car park and transfer taxis to Eversholt Street	Q3 2016
Station	Complete decant of station facilities from west of Platform 15	Q1 2017
Approach	Commence portal/diveunder construction	Q1 2017
Station	Open new eastern access ramp to parcels deck	Q3 2017
Station	Commence LU works, demolish plaza slab	Q1 2020
Approach	Arrival of first Tunnel Boring Machine (TBM) at Euston portal	Q2 2021
Station	Commence station servicing from new HS2 service deck	Q3 2021
Approach	Complete A400 Hampstead Road overbridge construction	Q2 2022
Station	Transfer conventional concourse temporarily to HS2 concourse Close existing basement servicing area Transfer taxis to permanent location (west side) Commence conventional concourse redevelopment	Q3 2022
Approach	Receive final area for railway systems installation	Q2 2023
Station	Open new LU ticket hall and ramp passages to NR platforms Transfer pedestrians from using existing concourse escalators to new Commence temporary utilisation of HS2 platform for LU pedestrians	Q2 2024
Station	Complete LU works	Q4 2024
Station	Complete conventional concourse works	Q3 2026

<b>Area</b>	<b>Activity</b>	<b>Date</b>
General	Complete and open HS2 services, including remainder of public realm	Q4 2026

- 6.4.11 Figure 6-23 shows the extent of the early start enabling works to be undertaken during 2015. This includes widespread utility and service diversions and the commencement of railway systems enabling works. No long-term temporary or permanent, road or public right of way closures are planned during this phase of construction. However, some local temporary diversions or realignments may be required on footways. These will be discussed and agreed with LBC and TfL prior to their implementation.

Figure 6-23: 2015 railway systems and utility works



6.4.12 Figure 6-24, Figure 6-25 and Figure 6-26 show the extent of the construction works that will be undertaken during 2016, 2017 and 2018 respectively.

Figure 6-24: 2016 utility, demolition, railway systems and structural works

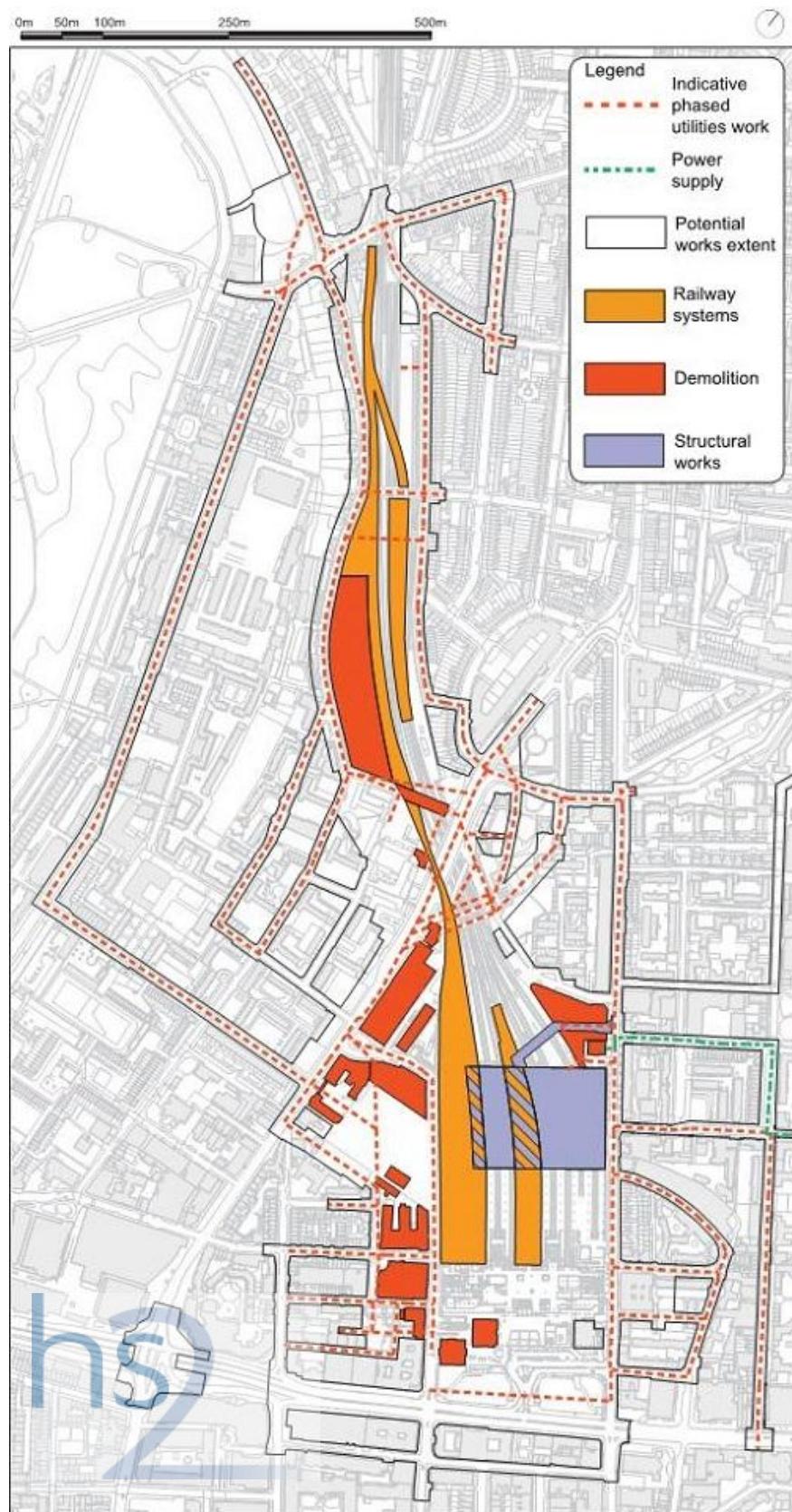


Figure 6-25: 2017 utility, demolition and piling/foundation works

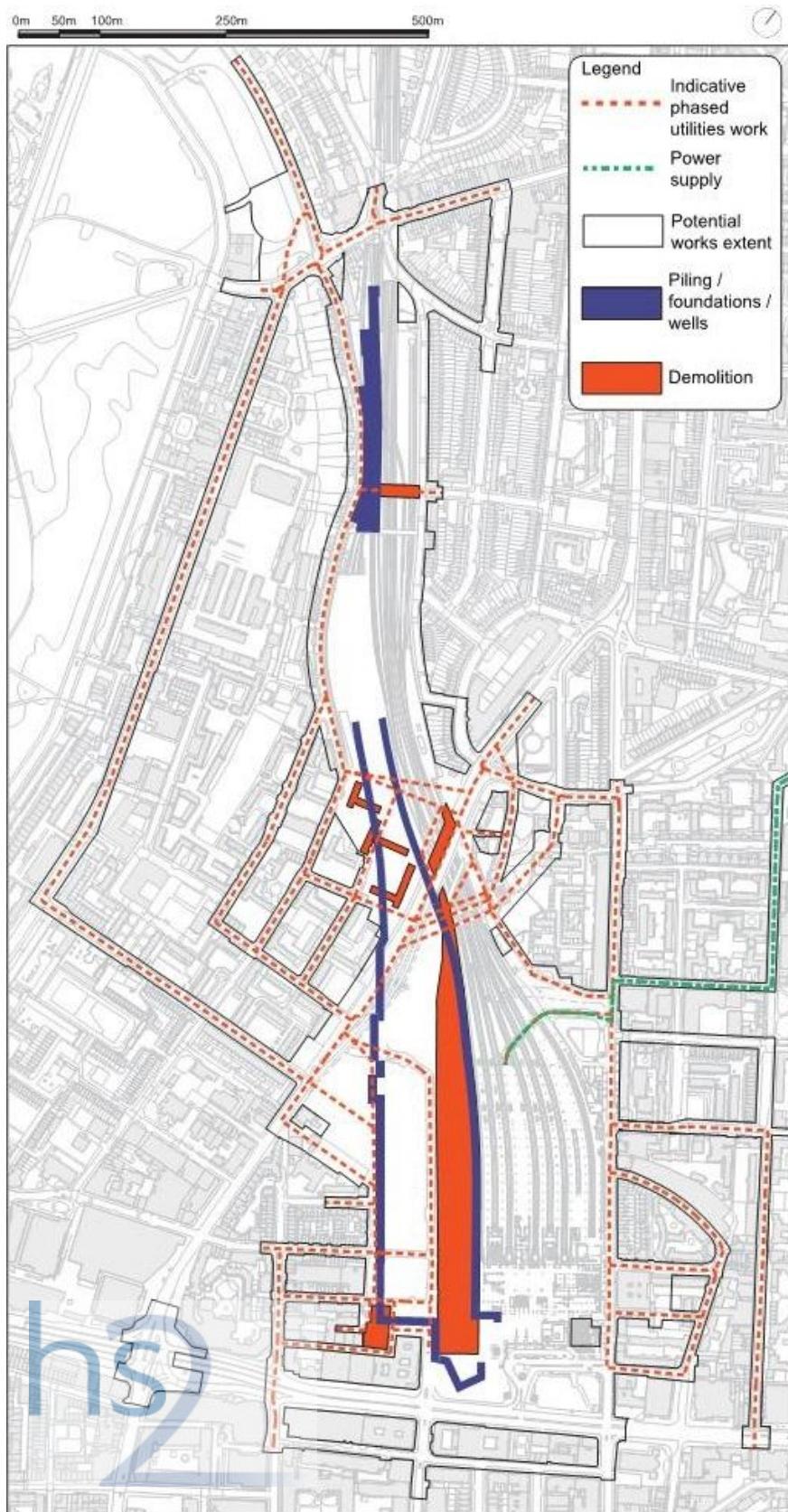
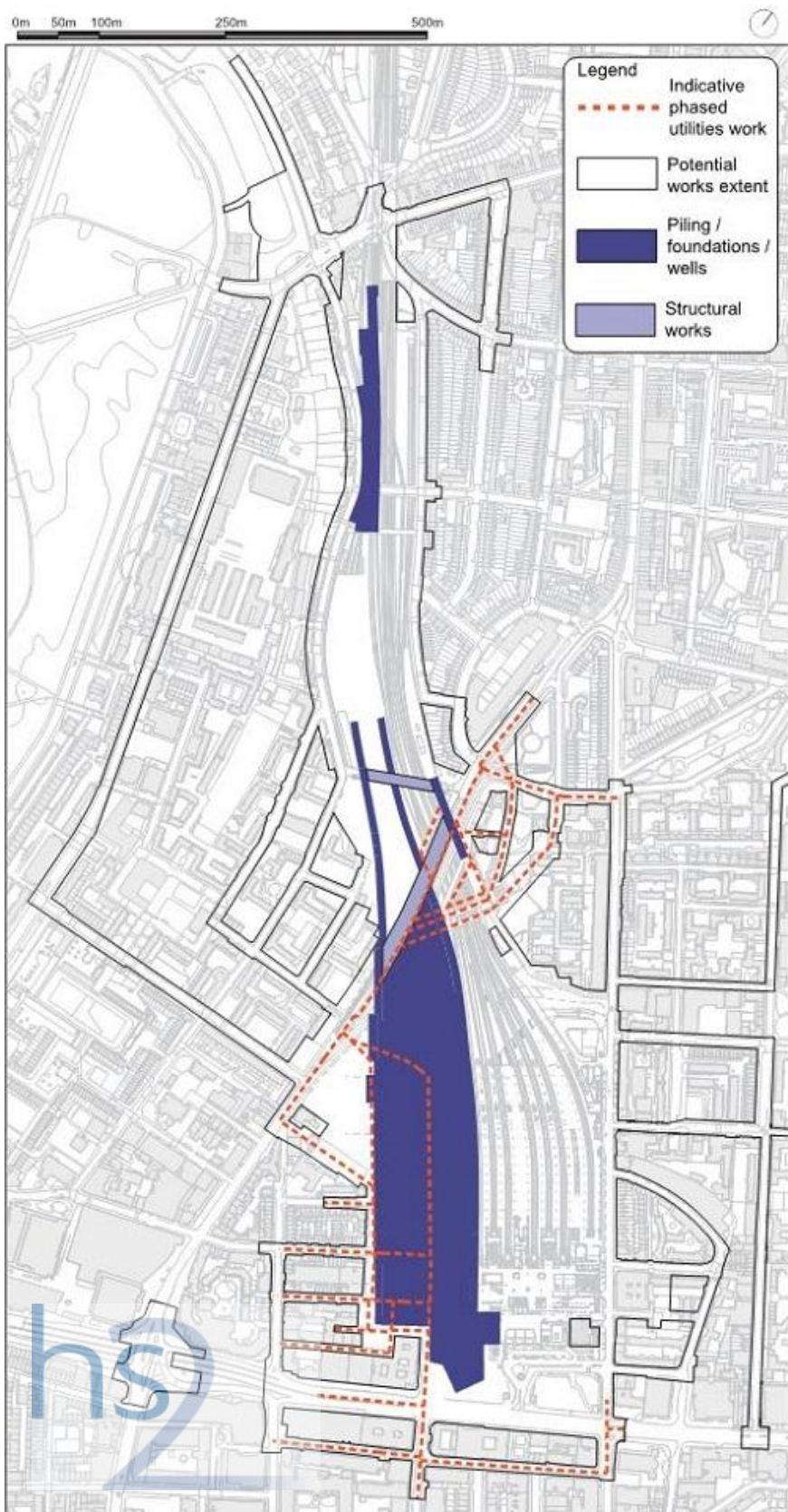


Figure 6-26: 2018 utility, demolition and piling/foundation works



- 6.4.13 During years 2016, 2017 and 2018 of construction, the following changes to the local highway network will occur:
- closure of Granby Terrace overbridge to vehicular traffic, cyclists and pedestrians;
  - closure of Mornington Street overbridge to vehicular traffic and cyclists while pedestrian access will be maintained via a temporary utilities bridge;
  - permanent closure of Gordon Street between A501 Euston Road and Endsleigh Gardens;
  - construction of a service vehicle ramp from A4200 Eversholt Street to a new service deck, while station modifications are taking place, followed by the removal of the west access to the existing parcels deck;
  - permanent closure of Cardington Street and Melton Street and the temporary relocation of the taxi drop-off/pick-up facilities to A4200 Eversholt Street; and
  - temporary re-alignment of A400 Hampstead Road and reduction to one lane in each direction.
- 6.4.14 Figure 6-27, Figure 6-28, Figure 6-29 and Figure 6-30 show the extent of the construction works that will be undertaken during 2019, 2020, 2021 and 2022 respectively.

Figure 6-27: 2019 utility, excavation, structural, fit-out and piling/foundation works

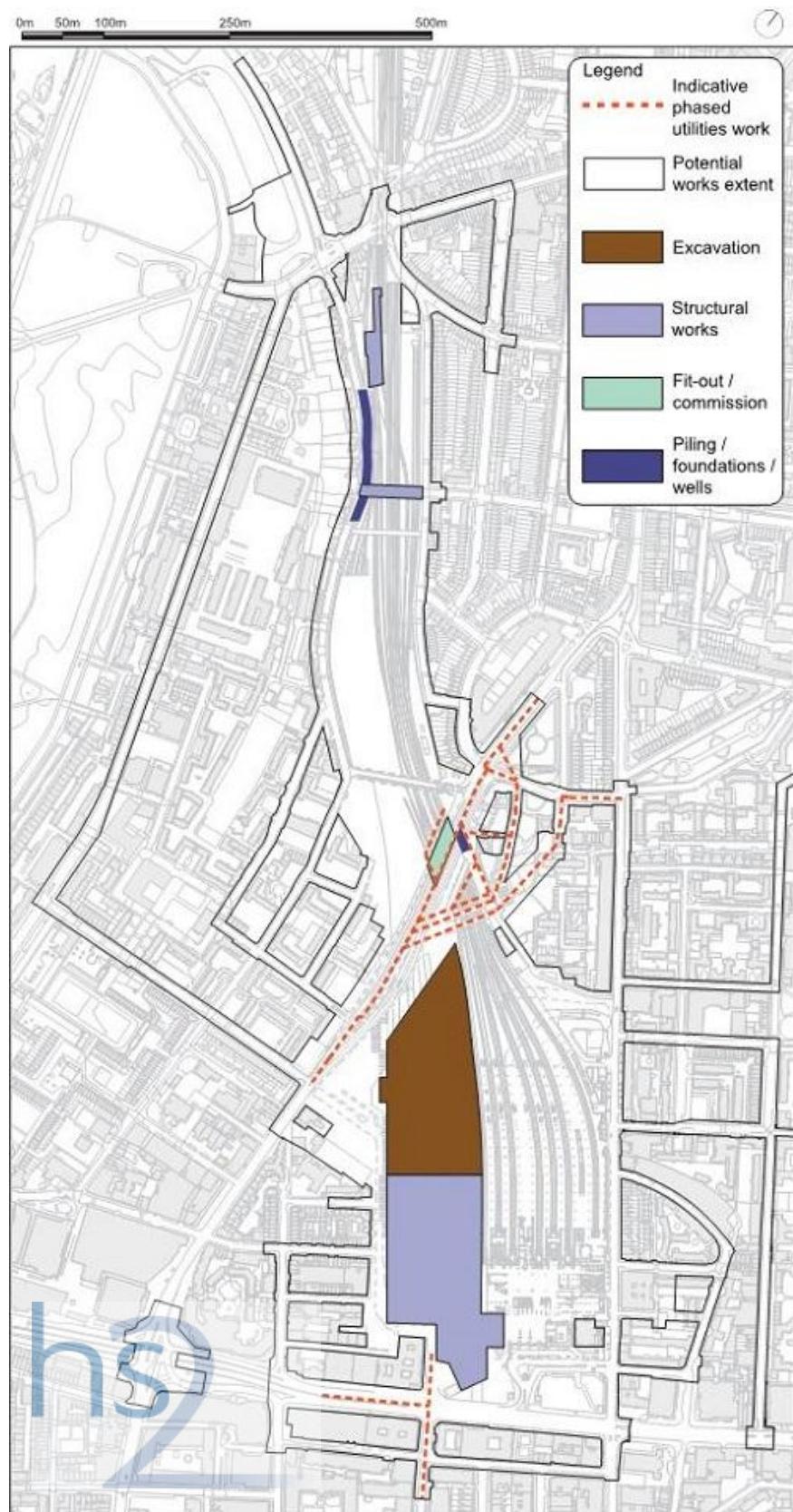


Figure 6-28: 2020 demolition, excavation, piling/foundation, structural and fit-out works and tunnel boring machine activity

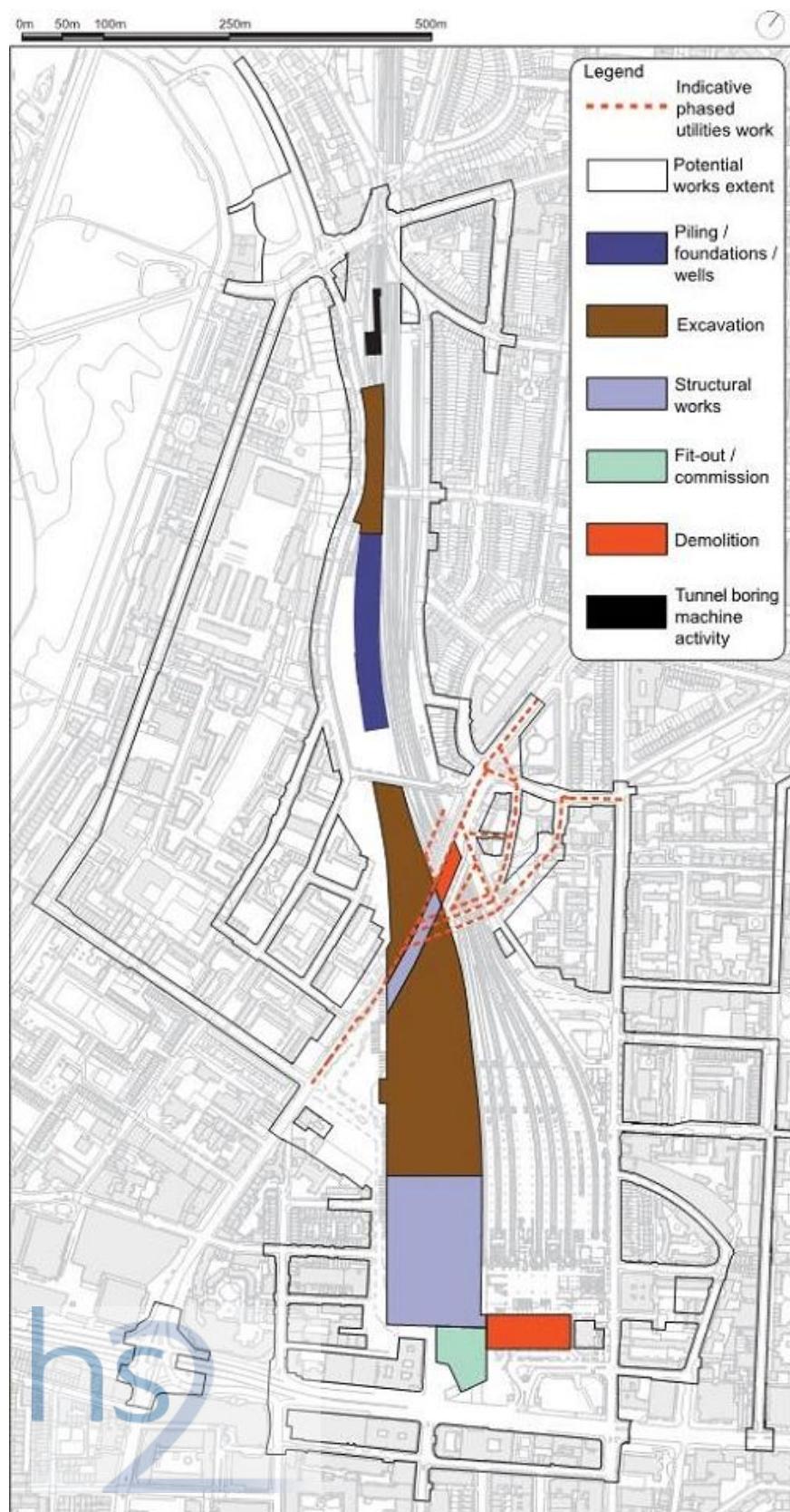


Figure 6-29: 2021 utility, excavation, structural, and fit-out works

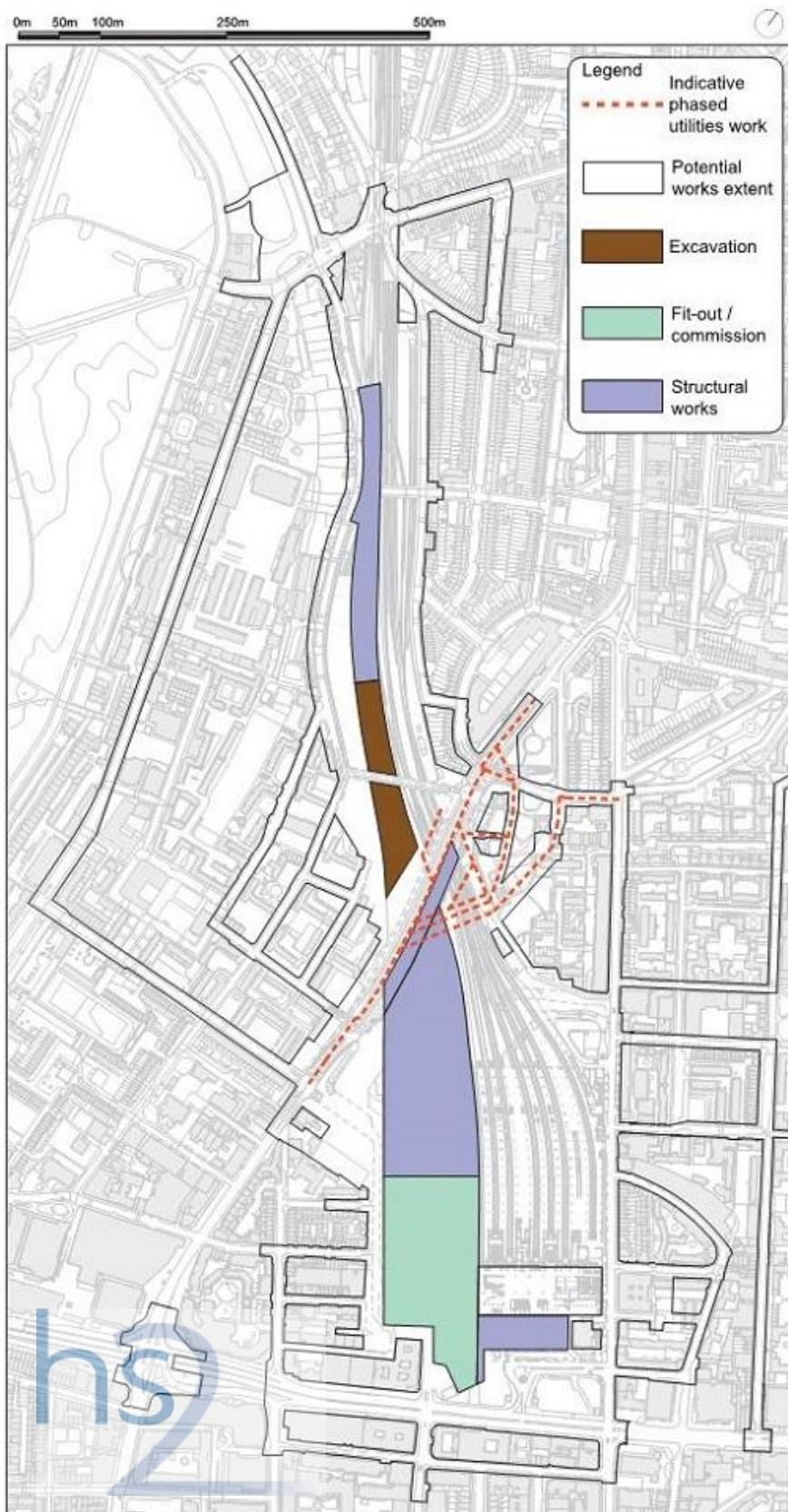
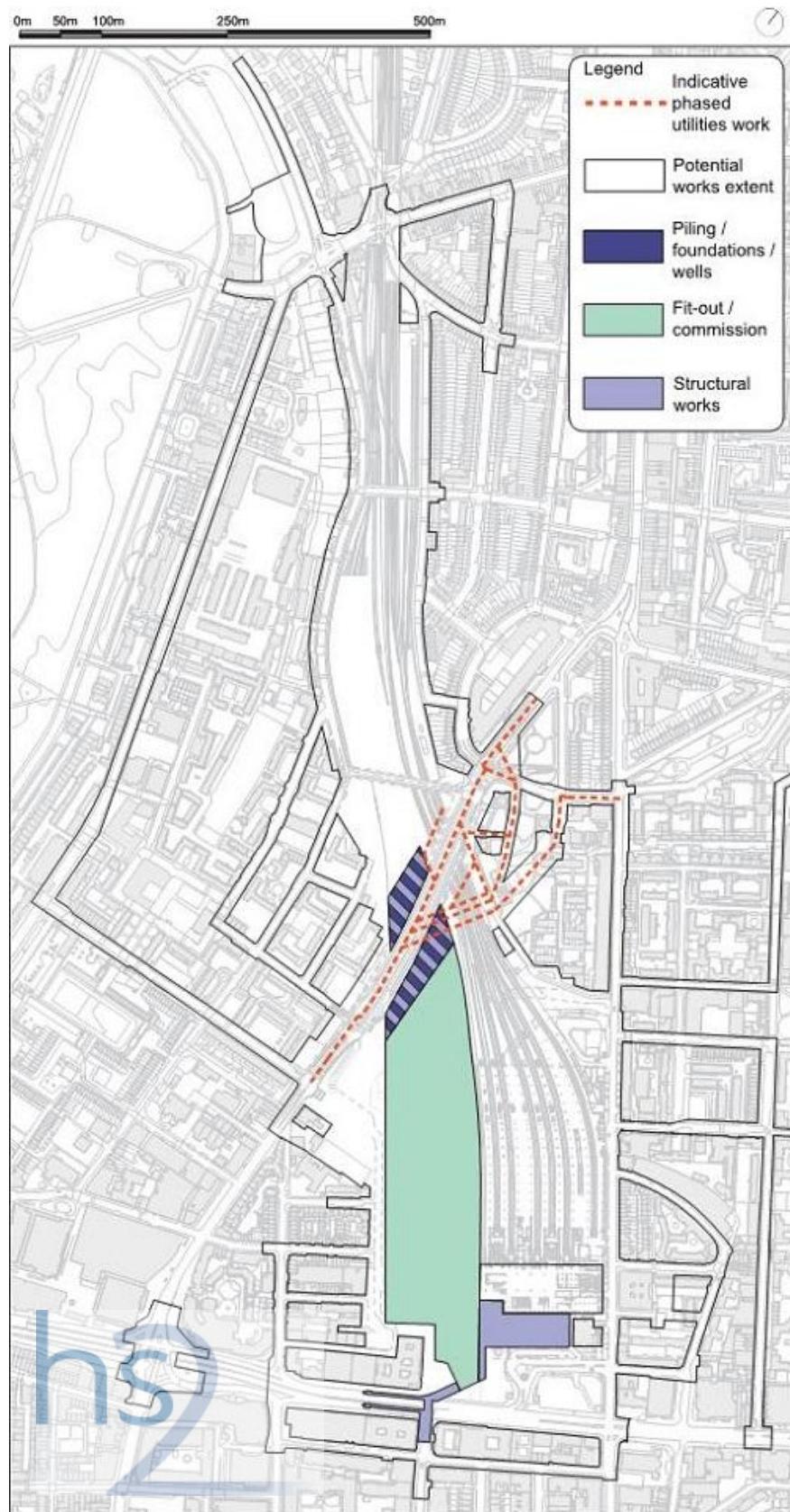


Figure 6-30: 2022 utility, excavation, structural and fit-out works



- 6.4.15 During years 2019, 2020, 2021 and 2022 of the construction programme, the following changes to the local highway network will occur:
- continued temporary re-alignment of A400 Hampstead Road with one lane in each direction. The realignment of A400 Hampstead Road and the construction of the A400 Hampstead Road overbridge will be completed by the end of Phase Two;
  - closure of Varndell Street junction with A400 Hampstead Road to vehicular traffic. This is a permanent closure;
  - construction of the east-west pedestrian and cycle bridge between A4200 Eversholt Street and the west side of Euston station connecting with Hampstead Road;
  - construction of the sub-surface pedestrian route beneath A501 Euston Road and provision of a Euston station connection to Gordon Street and Euston Square station; and
  - reduction from three to two lanes in each direction along A501 Euston Road over approximately 120m commencing some 30m east of Gordon Street, to facilitate the construction of the sub-surface pedestrian route.
- 6.4.16 Figure 6-31, Figure 6-32, Figure 6-33 and Figure 6-34 show the extent of the construction works that will be undertaken during 2023, 2024, 2025 and 2026 respectively.

Figure 6-31: 2023 utility, fit-out and structural works

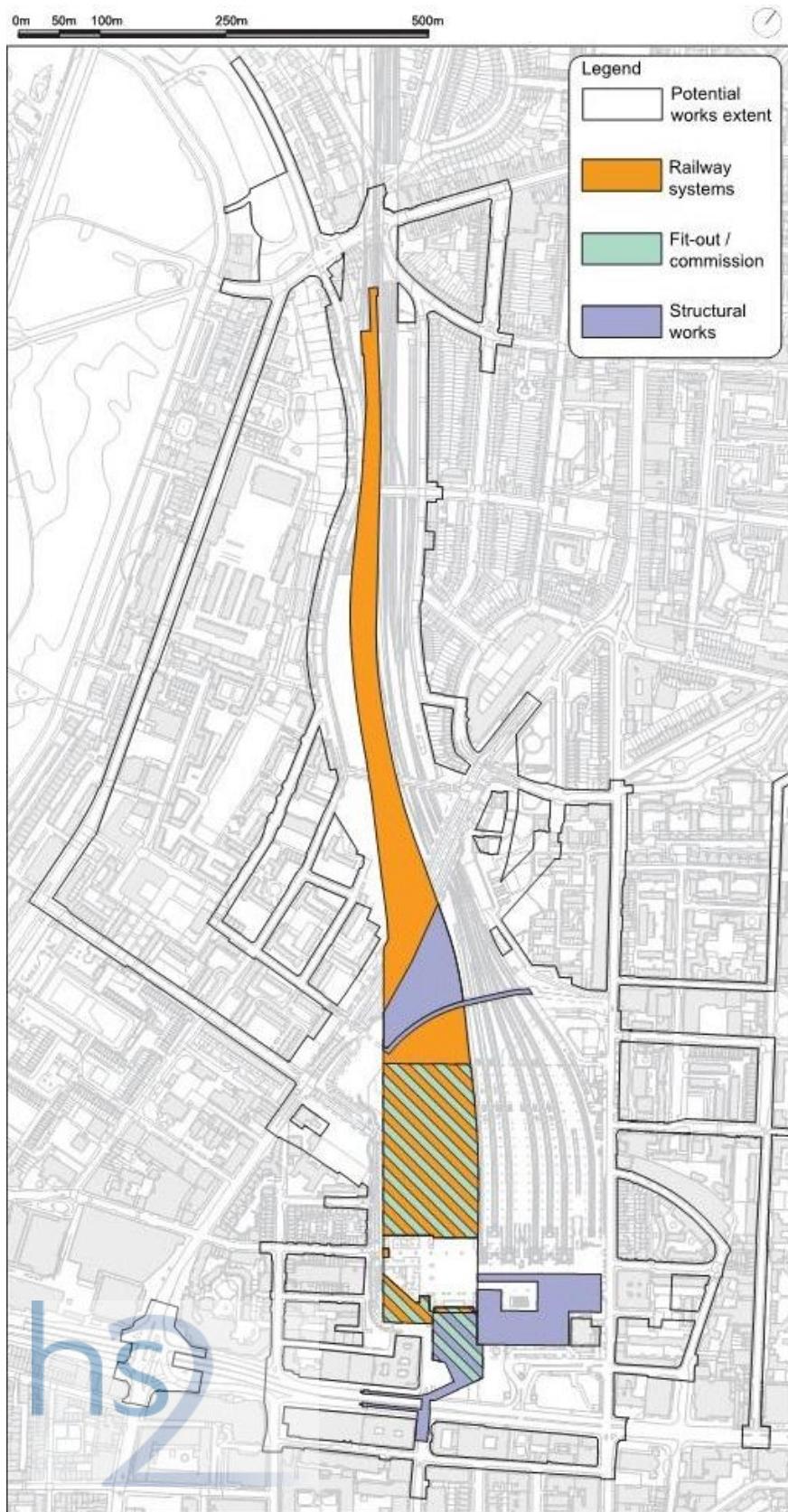


Figure 6-32: 2024 railway systems, structural and fit-out works



Figure 6-33: 2025 railway systems and fit-out works



Figure 6-34: 2026 fit-out works and trial running



- 6.4.17 During years 2023, 2024, 2025 and 2026 of the construction programme, the following changes to the local highway network will occur:
- opening of New Cobourg Street providing access to the new taxi/private car drop-off and taxi pick-up facilities on the western side of Euston station;
  - completion of the new pedestrian sub-surface route beneath the A501 Euston Road;
  - construction of the new Euston bus station including a new access to this facility from the A501 Euston Road. The existing bus station will remain in use during this period of construction and will be decommissioned when the new bus station is complete;
  - re-opening of Granby Terrace for public use, albeit with a different alignment; and
  - completion of construction works along the A501 Euston Road.

### *Compounds and construction sites*

- 6.4.18 Typical vehicle trip generation for construction site compounds in the Euston area are described in Table 6-41. The locations of each of the compounds can be seen in Map CT-05-001.
- 6.4.19 There are 11 construction compounds in total comprising one main site and 10 satellite compounds. The main site compound is the National Temperance Hospital and will be accessed from A400 Hampstead Road. Details of the construction compounds, including the location and number of construction workers employed at each site, are provided in Section 2 of the Environmental Statement, Volume 2, Report 1. It should be noted that not all construction compounds will be used at the same time.
- 6.4.20 The duration of when there will be busy transport activity, at each site, is shown in Table 6-41. This represents the period when the construction traffic flows will be greater than 50% of the peak flows. Also shown, is the estimated number of daily vehicle trips during the peak month of activity; the lower end of the range shows the average number of trips and the upper end the peak flows. The assessment scenario has assumed the peak month for the combination of activities, i.e. not necessarily the peak activity at each individual site. For the purposes of this assessment, it is assumed that all construction activity will be undertaken by road. However, other options, including rail transport of excavated material, are being explored.

Table 6-41: Typical vehicle trip generation for construction site compounds

Compound type	Location	Access	Indicative start set up date	Estimated duration of use	Estimated period with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Euston Square Gardens (west)	Melton Street and A501 Euston Road	Q1 2016	11 years	5 months	20-35	230-315
Main	National Temperance Hospital	A400 Hampstead Road	Q1 2016	11 years	17 months	40-60	410-590
Satellite	Granby Terrace overbridge	Initially Stanhope Street via Robert Street and after mid 2018 via Granby Terrace Bridge	Q1 2016	11 years	10 months	30-45	300-455
Satellite	Mornington Street overbridge	Mornington Terrace	Q1 2016	4 years (from start to end but in two 18 month phases)	14 months	<10	<10-10
	Mornington Terrace Sidings		Q3 2015	2 years			
Satellite	A400 Hampstead Road overbridge (north and south)	A400 Hampstead Road & Barnby Street	Q1 2016	11 years (north) 6 years (south)	17 months	<10	15-20
Satellite	Royal Mail NW1 delivery office	A4200 Eversholt Street	Q1 2016	11 years (from start to end but in two phases)	7 months	<10	45-60
Satellite	Euston Square Gardens (east)	A4200 Eversholt Street	Q1 2016 and Q1 2020	11 years (from start to end but in two phases)	6 months	<10	<10
Satellite	Gordon Street	A501 Euston Road	Q1 2016	11 years	9 months	<10	20-25
Satellite	Lancing Street	A4200 Eversholt Street	Q3 2020	6 years	6 months	<10	<10

Compound type	Location	Access	Indicative start set up date	Estimated duration of use	Estimated period with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Carriage Shed and Park Village East	Initially Stanhope Street via Robert Street and after mid 2018 via Granby Terrace Bridge	Q1 2016	11 years	17 months	<10	35-50

6.4.21 The location of each of the construction compounds is shown on Figure CT-05-001. The locations of the access points to each construction compound are described in Table 6-42.

Table 6-42: Construction compound access

Compound	Access location
Euston Square Gardens (west) satellite compound	Melton Street and A501 Euston Road
National Temperance Hospital main compound	A400 Hampstead Road
Granby Terrace overbridge satellite compound	Initially Stanhope Street via Robert Street and after mid 2018 via Granby Terrace overbridge
Mornington Street overbridge satellite compound	Mornington Terrace
Mornington Terrace Sidings satellite compound	Mornington Terrace
A400 Hampstead Road overbridge (South) satellite compound	A400 Hampstead Road and Barnby Street
A400 Hampstead Road overbridge (North) satellite compound	A400 Hampstead Road
Royal Mail NW1 Delivery Office satellite compound	A4200 Eversholt Street
The Podium main compound	A4200 Eversholt Street
Euston Square Gardens (East) satellite compound	A4200 Eversholt Street
Gordon Street satellite compound	A501 Euston Road
Lancing Street satellite compound	A4200 Eversholt Street
Park Village East and Carriage Shed satellite compound	Initially Stanhope Street via Robert Street and after mid 2018 via Granby Terrace overbridge

6.4.22 Construction vehicle movements during the construction of the Proposed Scheme include the delivery of plant and materials and the movement of excavated materials. During the busiest month, it is estimated that there will be approximately 740 vehicle movements (370 vehicle arrivals) within the Euston area. The split of construction vehicles is expected to be 90% HGVs and 10% light goods vehicles (LGV) and cars.

### *Construction lorry routes*

6.4.23 Site related vehicles will be identified in two categories:

- Heavy Goods Vehicles (HGV): articulated lorries for plant and materials, truck mounted cranes for self-offloading deliveries, concrete trucks, bulk tipper and walking floor trucks, abnormal/oversize loads (i.e. over length, width or height); and
- Light Goods Vehicles (LGV): cars, pickups and small (transit type) tipper trucks and vans.

6.4.24 Road Rail Vehicles (RRV) will be used in the construction of works immediately adjacent to, or over, existing conventional NR assets.

6.4.25 Typically, site deliveries via HGV vehicles will be limited to normal working hours. Large/exceptional concreting operations may require concrete to be delivered outside of normal hours. These will tend to occur over specific short durations (i.e. one day to three months) within the construction programme.

6.4.26 RRV will generally be delivered and operated outside of normal working hours for works associated with the existing conventional railway. Material delivery and removal, for those works interfacing with conventional rail, will be carried out during the same periods.

6.4.27 The majority of construction traffic is expected to access the main site compounds at the National Temperance Hospital and the satellite compound at Granby Terrace overbridge. During the main construction works these two compounds will be used by around 75% of construction vehicles. The National Temperance Hospital compound will be accessed from A400 Hampstead Road. Granby Terrace overbridge compound will be accessed from A400 Hampstead Road via Robert Street and Stanhope Street, until mid 2018, then via Granby Terrace Bridge.

6.4.28 It is envisaged that concrete would be sourced locally wherever possible. It is anticipated that 10% of demolition waste will be required to go to landfill with the remaining 90% diverted elsewhere and recycled where possible.

- 6.4.29 The construction vehicle routes that have been assumed for the purposes of the highway modelling are shown on Map TR-03-001 and described in Table 6-43. It is envisaged that the A41 and M1 motorway will be used as the HGV access and egress routes for transferring excavated material and contaminated waste to/from sites to the north of London. Smaller numbers of HGVs would access and egress the site from the east along the A13 (demolition material and concrete), the west along the A40 (demolition and concrete), the south (concrete) along A4200 Upper Woburn Place or A400 Gower Street, the far south (concrete) along the A501 Euston Road and A40 Westway (towards A3200 West Cross Route), and from A5200 York Way (concrete).

Table 6-43: Construction traffic routes to/from construction compounds

Compound	Material movement	Origin/destination	Route
National Temperance Hospital main compound  A400 Hampstead Road Overbridge (south) satellite compound	Concrete	A5200 York Way King's Cross	A400 Hampstead Road, A400 Camden High Street/Camden Street, A503 Camden Road, A5200 York Way
	Concrete	West	A400 Hampstead Road, A501 Euston Road, A40 Westway
	Demolition	Far west via the A40	
	Concrete	South	Southbound: A400 Hampstead Road, A501 Euston Road, A4201 Portland Place/Regent Street  Northbound: A400 Tottenham Court Road, A400 Hampstead Road
	Concrete	Far south	A400 Hampstead Road, A501 Euston Road, A40 Westway
	Concrete	East	Westbound: A501 Pentonville Road, Swinton Street, A501 Gray's Inn Road, A501 Euston Road, A4200 Eversholt Street, A400 Lidlington Place, A400 Hampstead Road
	Demolition	Far east (via the A13)	Eastbound: A400 Hampstead Road, A501 Euston Road (westbound), B506 Great Portland Street, A4201 Albany Street, Osnaburgh Street, A501 Euston Road (eastbound), A501 Pentonville Road
Carriage Shed and Park Village East satellite compound	Contaminated Waste	Sites to the north of London via the A41 and M1	A400 Hampstead Road, A501 Euston Road, A5 Edgware Road, A5205 St. John's Wood Road, A41 Finchley Road
	Excavated material		
	Concrete	A5200 York Way King's Cross	Park Village East, Granby Terrace, A400 Hampstead Road, A400 Camden High Street/Camden Street, A503 Camden Road, A5200 York Way
	Concrete	West South Far South East	Route to A400 Hampstead Road: Park Village East, Stanhope Street, Robert Street - onwards routes as per National Temperance Hospital compound  Route from A400 Hampstead Road: A400 Hampstead Road, A400 Camden High Street, A503 Delancey Street, A4201 A4201 Parkway, Park Village East - routes to Hampstead Road as per National Temperance Hospital

Compound	Material movement	Origin/destination	Route
Granby Terrace Overbridge satellite compound	Concrete	A5200 York Way King's Cross	Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A400 Camden High Street/Camden Street, A503 Camden Road, A5200 York Way
	Concrete	West	Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A501 Euston Road, A40 Westway
	Demolition	Far west via the A40	
	Concrete	South	Southbound: Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A501 Euston Road, A4201 Portland Place/Regent Street  Northbound: A400 Tottenham Court Road, A400 Hampstead Road, Varndell Street/Robert Street, Stanhope Street
	Concrete	Far south	Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A501 Euston Road, A40 Westway
	Concrete	East	Westbound: A501 Pentonville Road, Swinton Street, A501 Gray's Inn Road, A501 Euston Road, A4200 Eversholt Street, A400 Lidlington Place, A400 Hampstead Road, Varndell Street/Robert Street, Stanhope Street
	Demolition	Far east (via the A13)	Eastbound: Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A501 Euston Road (westbound), B506 Great Portland Street, A4201 Albany Street, Osnaburgh Street, A501 Euston Road (eastbound), A501 Pentonville Road
Mornington Street Bridge satellite compound	Contaminated waste	Sites to the north of London via the A41 and M1	Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A501 Euston Road, A5 Edgware Road, A5205 St. John's Wood Road, A41 Finchley Road
	Excavated material		
Mornington Terrace Sidings satellite compound	All	All	Route to A400 Hampstead Road: Mornington Terrace, A503 Delancey Street, A503 Camden Road, A5200 York Way  Route from A400 Hampstead Road: Mornington Crescent, Clarkson Row - routes to A400 Hampstead Road as per National Temperance Hospital
Euston Square Gardens (East) satellite compound	Concrete	A5200 York Way King's Cross	Grafton Place, Churchway, A501 Euston Road, A5200 York Way
	Concrete	West	Grafton Place, Churchway, A501 Euston Road, A40 Westway
	Demolition	Far west via the A40	
	Concrete	South	Euston Square, A4200 Upper Woburn Place, Southampton Row
		Far south	
	Concrete	East	Westbound: A501 Pentonville Road, Swinton Street, A501 Gray's Inn Road, A501 Euston Road, Churchway, Grafton Place
	Demolition	Far east (via the A13)	Eastbound: Grafton Place, Churchway, A501 Euston Road, A501 Pentonville Road
	Contaminated	Sites to the north of	Grafton Place, Churchway, A501 Euston Road, A5 Edgware

Compound	Material movement	Origin/destination	Route
	waste Excavated material	London via the A41 and M1	Road, A5205 St. John's Wood Road, A41 Finchley Road
Royal Mail NW1 Delivery Office satellite compound  Lancing Street satellite compound	Concrete	A5200 York Way King's Cross	A4200 Eversholt Street, Grafton Place, Churchway, A501 Euston Road, A5200 York Way
	Concrete Demolition	West Far west via the A40	A4200 Eversholt Street, Grafton Place, Churchway, A501 Euston Road, A40 Westway
	Concrete	South Far south	A4200 Eversholt Street, Euston Square, A4200 Upper Woburn Place, Southampton Row
	Concrete Demolition	East Far east (via the A13)	Westbound: A501 Pentonville Road, Swinton Street, A501 Gray's Inn Road, A501 Euston Road, Churchway, Grafton Place, A4200 Eversholt Street  Eastbound: A4200 Eversholt Street, Grafton Place, Churchway, A501 Euston Road, A501 Pentonville Road
	Contaminated waste Excavated material	Sites to the north of London via the A41 and M1	A4200 Eversholt Street, Grafton Place, Churchway, A501 Euston Road, A5 Edgware Road, A5205 St. John's Wood Road, A41 Finchley Road
Euston Square Gardens (West) satellite compound	Concrete	A5200 York Way King's Cross	Eastbound: A501 Euston Road, A5200 York Way  Westbound: A5200 York Way, Goods Way, Midland Road, A501 Euston Road
Gordon Street satellite compound	Concrete Demolition	West Far west via the A40	A501 Euston Road, A40 Westway
	Concrete	South	Northbound: A400 Tottenham Court Road, A501 Euston Road  Southbound: A501 Euston Road, A400 Gower Street
	Concrete	Far south	Northbound: A40 Westway, A501 Euston Road  Southbound: A501 Euston Road, A400 Gower Street
	Concrete Demolition	East	Eastbound: A501 Euston Road, A501 Pentonville Road  Westbound: A501 Pentonville Road, Swinton Street, A501 Gray's Inn Road, A501 Euston Road
	Contaminated waste Excavated material	Sites to the north of London via the A41 and M1	A501 Euston Road, A5 Edgware Road, A5205 St. John's Wood Road, A41 Finchley Road

### *Traffic management, road closures and diversions*

- 6.4.30 The interventions on the highway network can be summarised into main works, utility works and other interventions. In addition, the cumulative impacts of the interventions in CFA2, Camden Town HS1 Link and CFA3, Primrose Hill, as a result of constructing the HS2 to HS1 link, have been considered in the assessment of the highway network. A summary of the interventions is provided as follows:
- main works:
    - Various road closures (as described below);
    - A400 Hampstead Road overbridge works;
    - Mornington Street overbridge;
    - Granby Terrace overbridge works;
    - Park Village East closed in sections ; and
    - Euston underground link under A501 Euston Road (temporary bridge).
  - utility works:
    - New Cobourg Street;
    - Melton Street;
    - A4201 Parkway, A4201 Albany Street and Robert Street (Water) and A4200 Eversholt Street (water main diversion);
    - A501 Euston Road and Gower Street (2 narrow lanes) (Power);
    - Euston LU connection (Melton Street area); and
    - Mornington Street overbridge closed.
  - other works:
    - relocate taxis from below station and close car park; and
    - demolish Hotel Ibis.
  - CFA2, Camden Town HS1 Link intervention: Chalk Farm Road - closed section.
  - CFA3, Primrose Hill intervention: Adelaide Road - closed section.
- 6.4.31 The Proposed Scheme will result in permanent road closures, as a result of an enlarged station footprint, or permanent highway works, as set out in Table 6-44.

Table 6-44: Permanent road closures without replacement

<b>Location</b>	<b>Description of closure</b>
Cardington Street	Permanently closed for its entire length
Melton Street (south of Cardington Street)	Permanently closed from the junction with Euston Street to new bus station access
Stephenson Way (eastern end)	Northern end permanently closed at the junction with Euston Street. Connection may be maintained with realigned Cobourg Street
Drummond Street (eastern end)	Permanently closed between Cardington Street and Cobourg Street. Connection may be maintained with realigned Cobourg Street
Euston Street (eastern end)	Permanently closed between Cardington Street and Cobourg Street
Varndell Street (eastern end)	Permanently closed to vehicles at the junction with A400 Hampstead Road, because of level changes. Pedestrian and cycle access may be maintained
Harrington Street (northern end)	Permanently closed at the junction with Granby Terrace
Hampstead Road (not the A400 Hampstead Road)	A minor road called Hampstead Road which is not the A400 Hampstead Road, permanently closed between junction with Cardington Street and A400 Hampstead Road
Bus station access	Permanently closed from the junction with Euston Road across Euston Square Gardens to the bus station
Gordon Street (northern end)	Permanently closed to vehicles between Euston Road and Endsleigh Gardens. Pedestrian and cycle access will be maintained

6.4.32 The Proposed Scheme will result in permanent road closures with replacement, as a result of an enlarged station footprint, as set out in Table 6-45.

Table 6-45: Permanent road closures with replacement

<b>Location</b>	<b>Description of closure</b>	<b>Approximate duration</b>
Cobourg Street	Permanently closed for its entire length and rebuilt on a widened alignment	2016-2026
A400 Hampstead Road	Existing bridge is to be demolished. Bridge to be rebuilt on an altered vertical alignment	2016-2021
Granby Terrace Bridge	Existing bridge is to be demolished. Bridge to be rebuilt on a slightly altered alignment. Granby Terrace overbridge will reopen for site use only in mid-2018, then opening to the public in mid-2021	2016-2018

- 6.4.33 The impact of permanent road closures is reported in the operational chapter.
- 6.4.34 Generally, where roads will be affected by the construction of the Proposed Scheme, the strategy to mitigate this will be to reduce disruption resulting from highway works by implementing well managed, phased construction involving either permanent or temporary realignments or temporary diversions.
- 6.4.35 Construction of the Proposed Scheme will result in the temporary road closures shown in Table 6-46. The closure of roads will be kept to as short a duration as practicable and arrangements will be made to provide satisfactory alternative access arrangements during closures.

Table 6-46: Long period temporary road closures

<b>Location</b>	<b>Description of closure</b>	<b>Approximate duration</b>
Mornington Street overbridge	To be demolished and rebuilt on its current alignment. A temporary shared utilities, pedestrian and cycle bridge will be installed during construction	2016-2020
Park Village East	Closed to vehicles in sections between its junction with Parkway to about 30m south of Mornington Street Bridge	2016-2020
Drummond Street	Closed at the junction with Cobourg Street	2016-2022
Euston Street	Closed at the junction with Cobourg Street	2016-2022
Starcross Street	Closed at the junction with Cobourg Street	2016-2022
Stephenson Way	Closed from the junction with Euston Street for part of its length	2016-2022

### *Consolidation of construction phases for assessment*

- 6.4.36 The construction works will be undertaken throughout the site for the majority of the construction period. In order to assess the different combinations of advance works, utility diversions and construction lorry movements through the construction programme, the impacts have been considered for three distinct temporal phases:
- Scenario 1, 2017: this corresponds with advance works and utilities on the highway network together with around 70% of the maximum construction traffic;
  - Scenario 2, 2019: this corresponds with the main station works together with maximum (100%) construction traffic and the short-term highway works at Chalk Farm Road (CFA2) and Adelaide Road (CFA3); and
  - Scenario 3, 2021: this corresponds to the completion of the majority of advance works on the highway with around 90% of the maximum construction traffic.

6.4.37 Because the advance works, utility diversions and construction lorry movements differ for each of these scenarios, the assessment includes the impacts of all three phases. Where impacts are not common across all scenarios, they are still assessed. The highway interventions and utilities works for each of the scenarios are shown in Table 6-47.

Table 6-47: Construction highway interventions

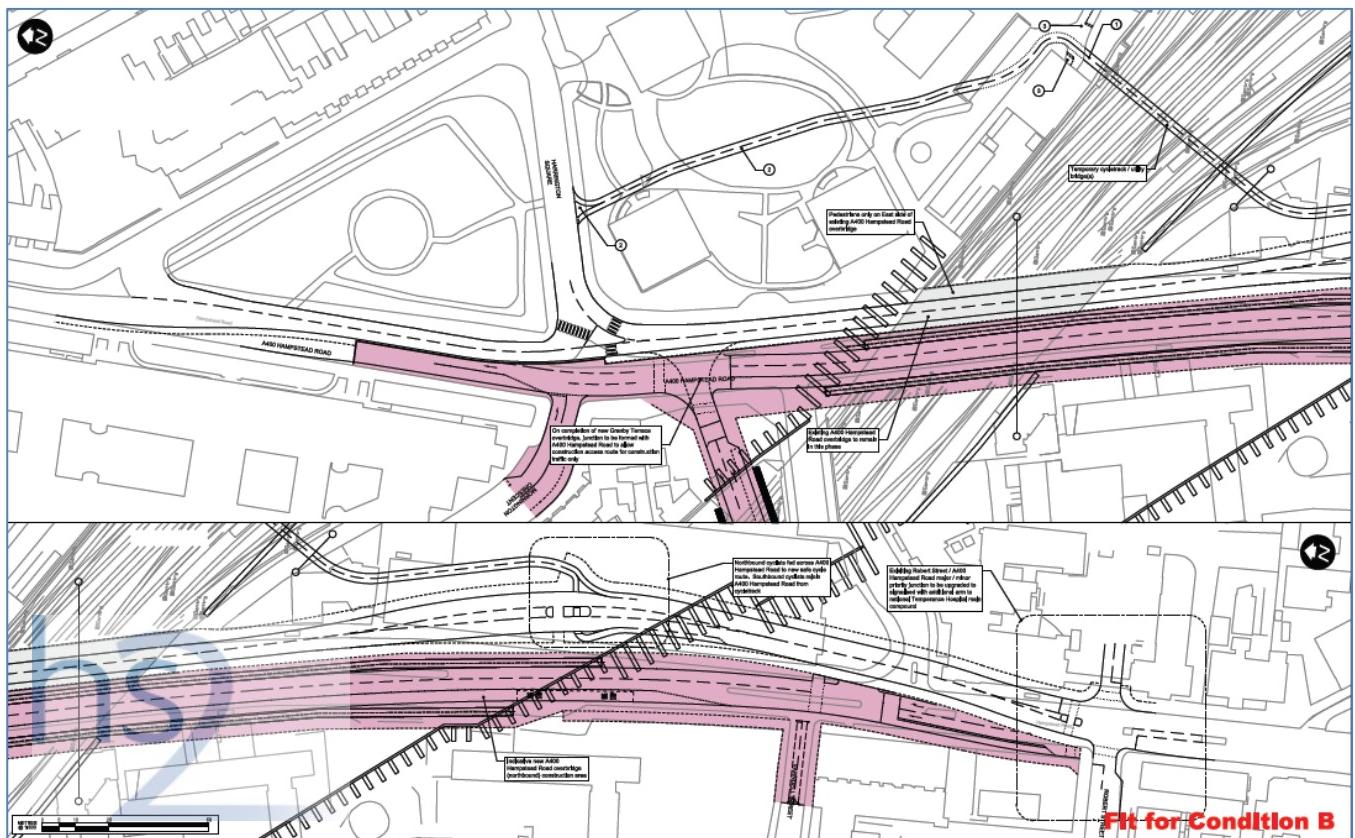
Intervention	Scenario 1 (2017)	Scenario 2 (2019)	Scenario 3 (2021)
<b>Main works</b>			
Gordon Street closed	Yes	Yes	Yes
Euston station underground car park closed	Yes	Yes	Yes
Varndell Street closed to vehicles at A400 Hampstead Road	Yes	Yes	Yes
Eastern end of Starcross Street, Drummond Street, Euston Street and Stephenson Way closure at Cobourg Street	Yes	Yes	Yes
Cardington Street closed	Yes	Yes	Yes
Melton Street closed	Yes	Yes	Yes
A400 Hampstead Road bridge/A400 Hampstead Road temporary substitution and reduction to two lanes	Yes	Yes	Yes
Granby Terrace bridge closed	Yes	Yes	No
Mornington Street bridge closed	Yes	Yes	No
Park Village East closed	Yes	Yes	No
Barnby Street closed	Yes	No	No
Construction of A501 Euston Road subway and Euston Square connection	No	No	Yes
<b>Utilities</b>			
Diversion of various services via Albert Street and Robert Street	Yes	No	No
Diversion of various services via Parkway and A5205 Prince Albert Road	Yes	No	No
Diversion of a sewer in A4200 Eversholt Street	Yes	No	No
Diversion of various utilities in A501 Euston Road and Gordon Street	No	Yes	No
<b>Other</b>			
Lorry holding area at ZSL London Zoo	No	Yes	Yes
Euston station taxi facility - relocation to A4200 Eversholt Street	Yes	Yes	No
CFA2, Camden Town HS1 Link intervention: Chalk Farm Road - closed section	No	Yes	No
CFA3, Primrose Hill intervention: Adelaide Road - closed section	No	Yes	No

- 6.4.38 A lorry holding area at ZSL London Zoo coach park has been assessed to support the Euston station construction works. Initial discussions have taken place with Royal Parks and the operation of the lorry holding area will be subject to on-going investigation and consultation.
- 6.4.39 Drummond Street is identified as a construction route but will only be used for a small number of specific construction activities. This feature is shown on Map CT-05-001 (Volume 2, Map Book 1). The volume of trips will be small and will not generate any additional traffic impacts to those reported.
- 6.4.40 Initially, vehicle access to the Granby Terrace overbridge and Carriage shed, and Park Village East satellite compounds, will be from A400 Hampstead Road via Robert Street and Stanhope Street. On completion of Granby Terrace bridge, in mid-2018, the bridge will reopen, for construction traffic only, enabling the majority of construction vehicles to access these compounds from A400 Hampstead Road via Granby Terrace. The bridge will then open to general traffic in mid-2021.
- 6.4.41 There is an interaction with CFA2 and CFA3 in terms of lorry routeing and impacts of road closures. Where these activities affect adjacent CFA, these are identified in this assessment for completeness, but the impacts are reported in the relevant CFA.

### **A400 Hampstead Road**

- 6.4.42 The A400 Hampstead Road Bridge currently carries a six lane road. Reconstruction will involve removing one half of the width and replacing it, before repeating for the other half. Throughout reconstruction, it will be possible to keep one lane of traffic open in each direction, including facilities for pedestrians and cyclists. Two temporary utilities bridges will be provided during construction, of which one will enable access for cyclists. The temporary layout for Hampstead Road is shown in Figure 6-35.

Figure 6-35: Hampstead Road temporary diversion



## A501 Euston Road

- 6.4.43 The construction works on A501 Euston Road will involve a number of stages and a series of traffic management measures will be put in place to control the traffic flow. These measures are shown in Figure 6-36 to Figure 6-39.
- 6.4.44 The traffic management measures will ensure that for each stage of the construction works on Euston Road, two lanes will be provided in each direction. The reduction in the number of available lanes, including the removal of the bus lanes (in both directions), has been included in the highway modelling.

Figure 6-36: A501 Euston Road traffic management measures - stage 1

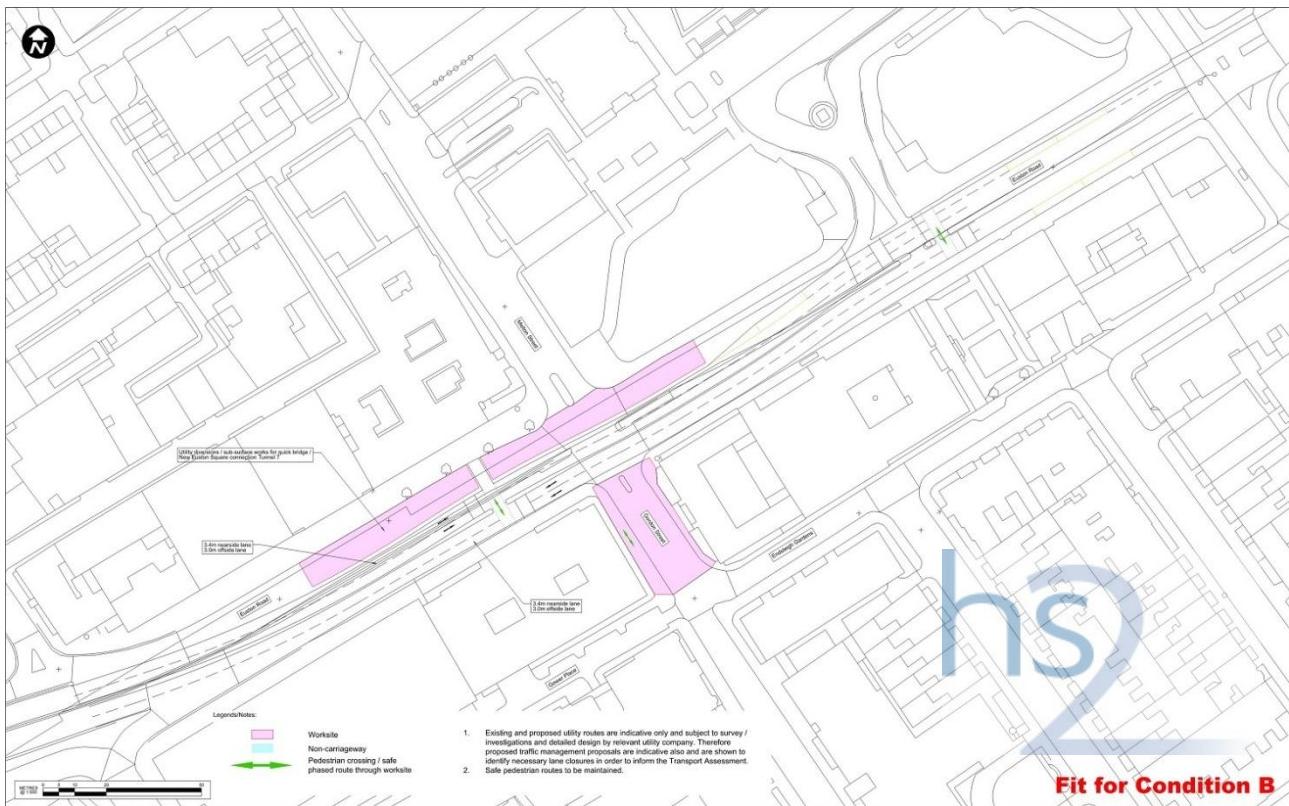


Figure 6-37: A501 Euston Road traffic management measures - stage 2

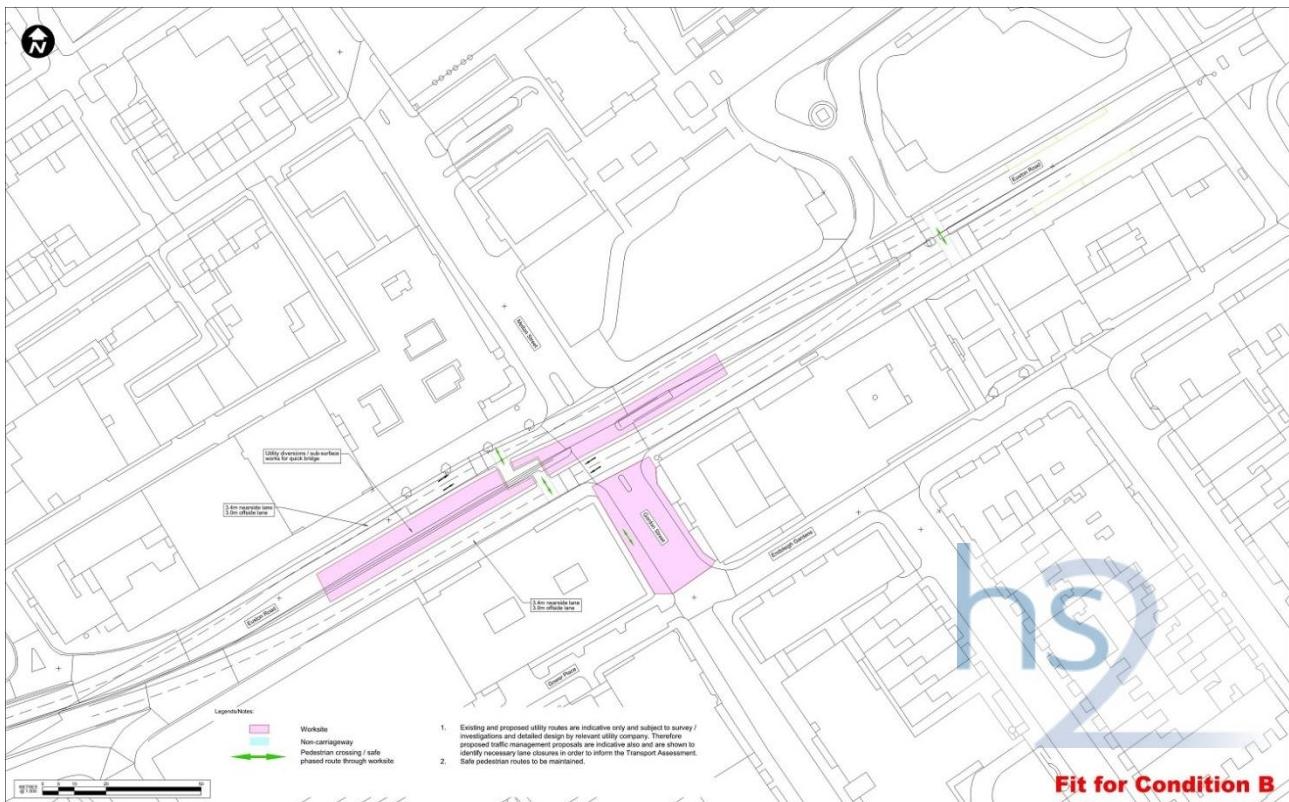


Figure 6-38: A501 Euston Road traffic management measures - stage 3

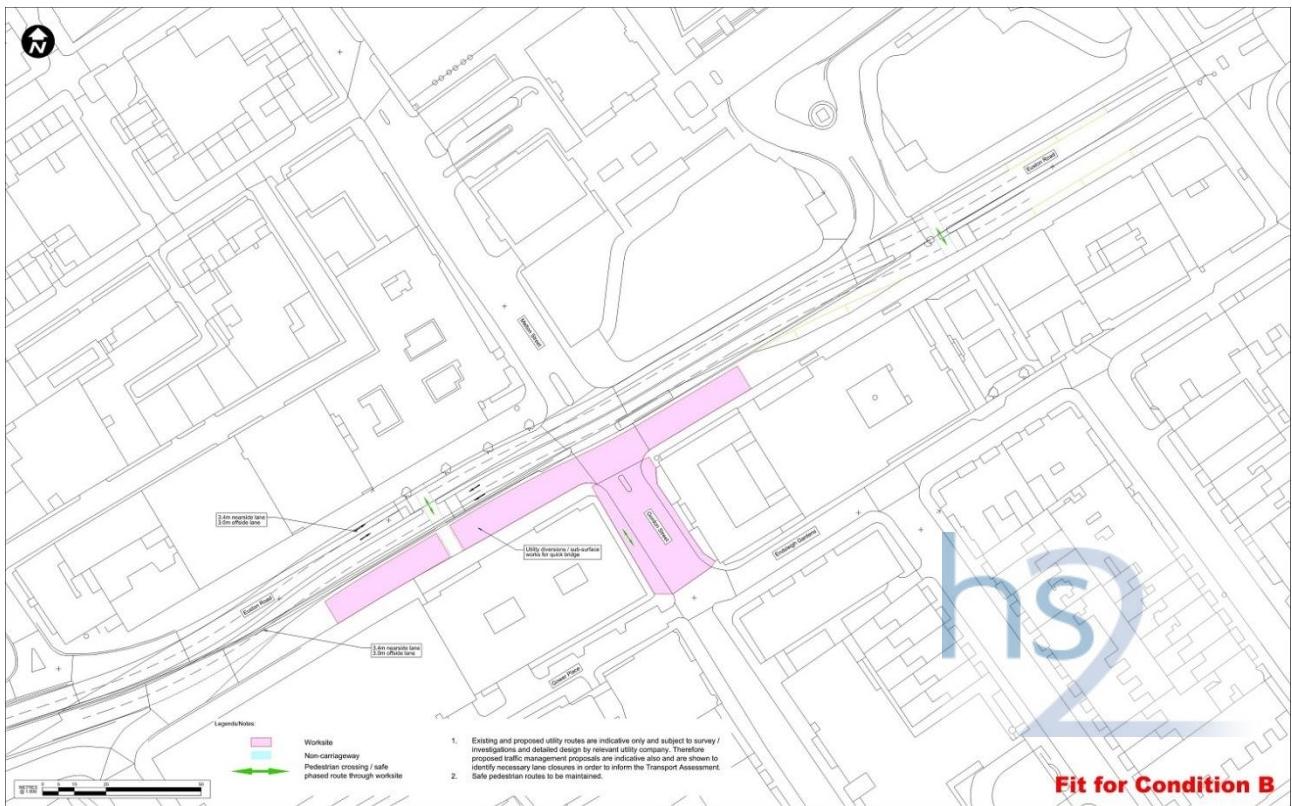
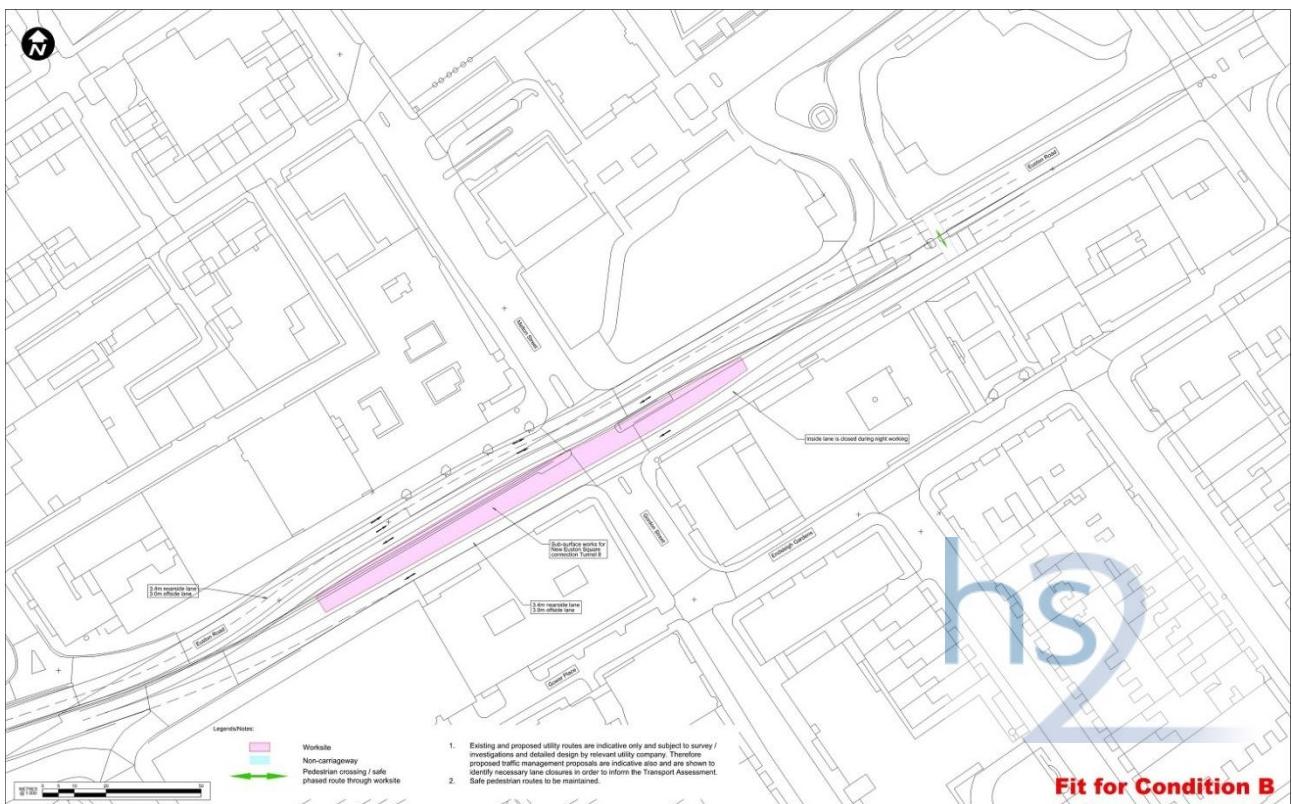


Figure 6-39: A501 Euston Road traffic management measures - stage 4



## A4201 Parkway

- 6.4.45 Traffic management measures will also be put in place during the diversions of utilities at A4201 Parkway. These measures are shown in Figure 6-40, Figure 6-41, Figure 6-42, Figure 6-43, Figure 6-44 and Figure 6-45.
- 6.4.46 The traffic management measures will ensure that the construction works take place, while aiming to minimise disruption to vehicular traffic. The reduction in the available number of lanes on A4201 Parkway has been included in the highway modelling assessments.

Figure 6-40: A4201 Parkway traffic management measures - stage 1

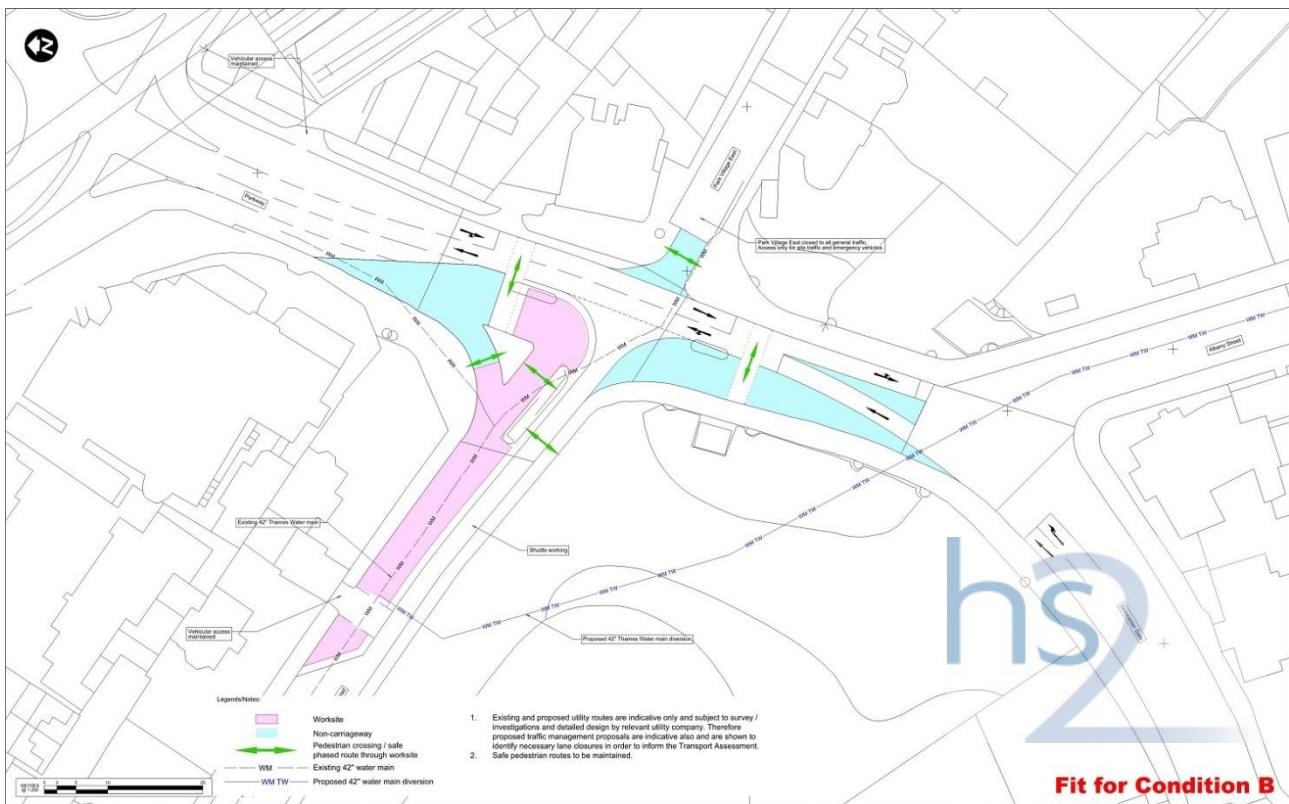


Figure 6-41: A4201 Parkway traffic management measures - stage 2

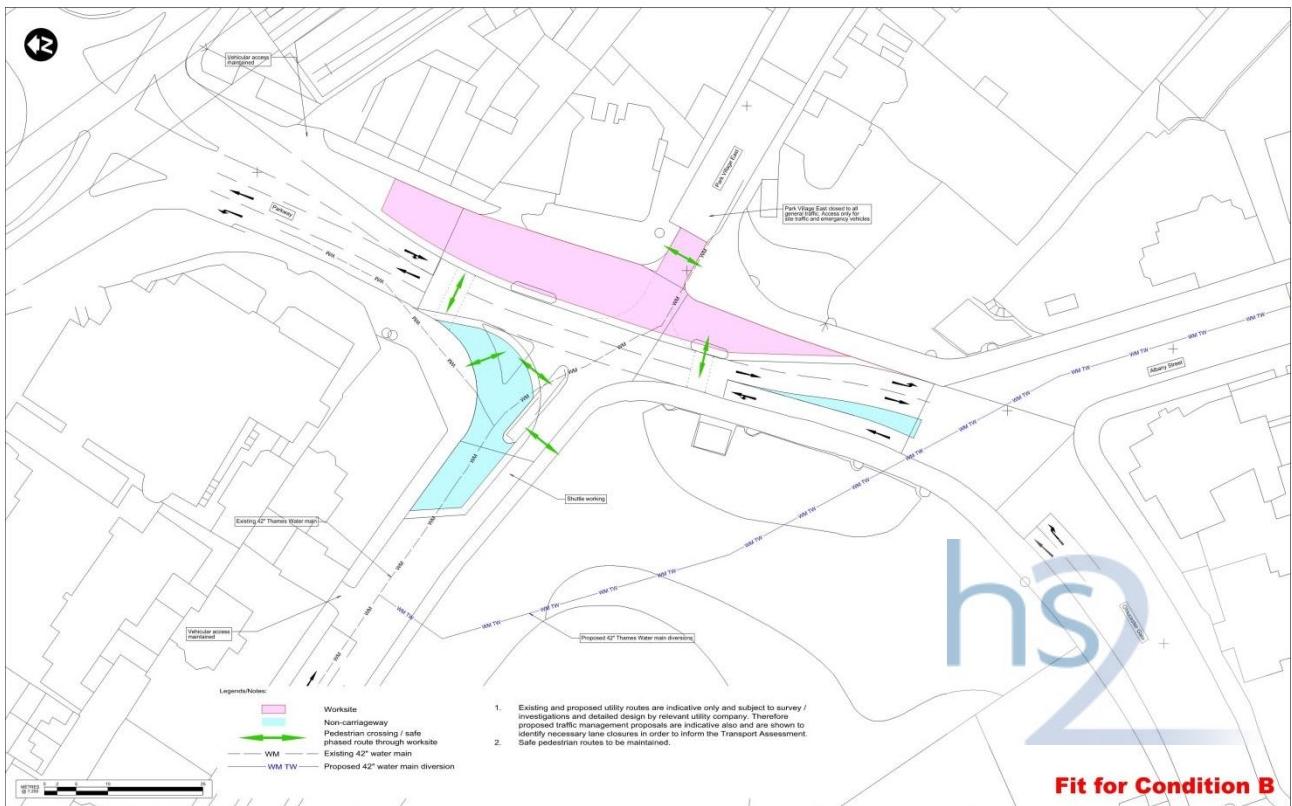


Figure 6-42: A4201 Parkway traffic management measures - stage 3

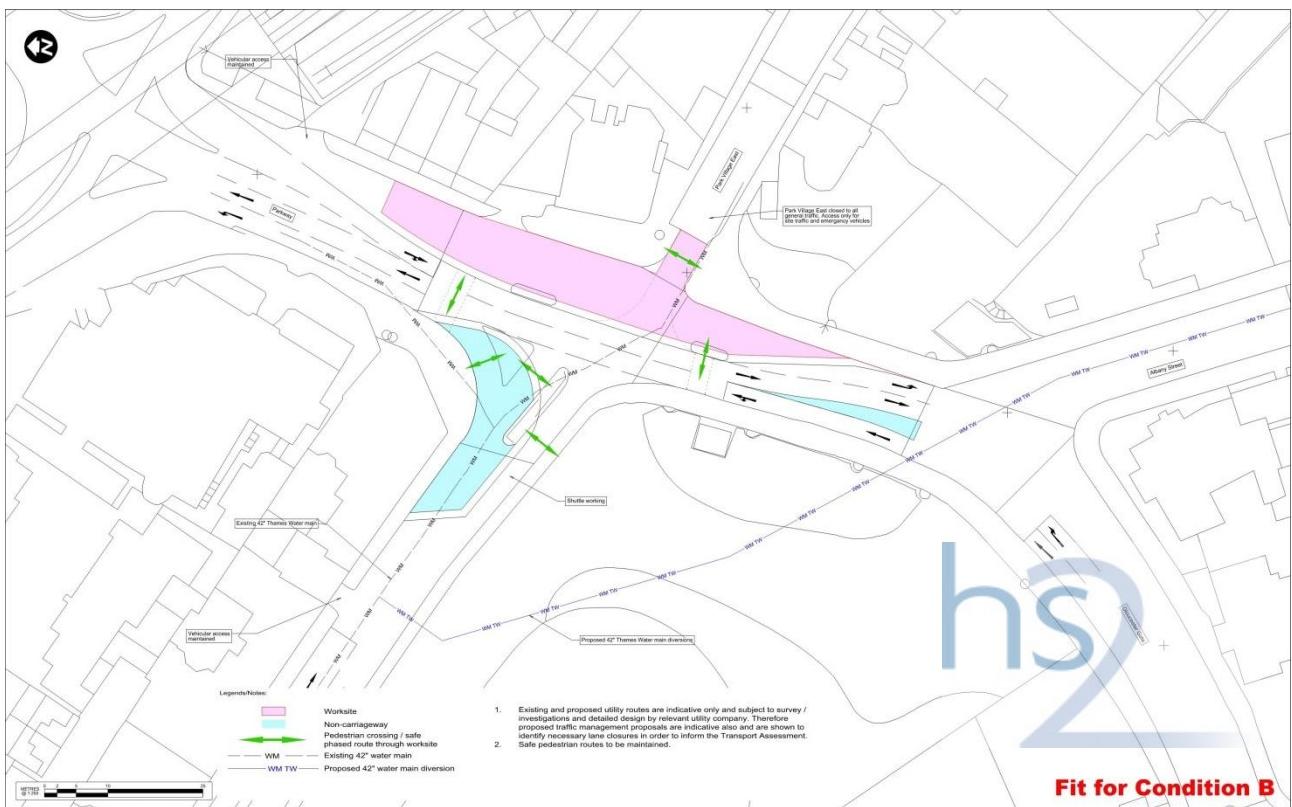


Figure 6-43: A4201 Parkway traffic management measures - stage 4

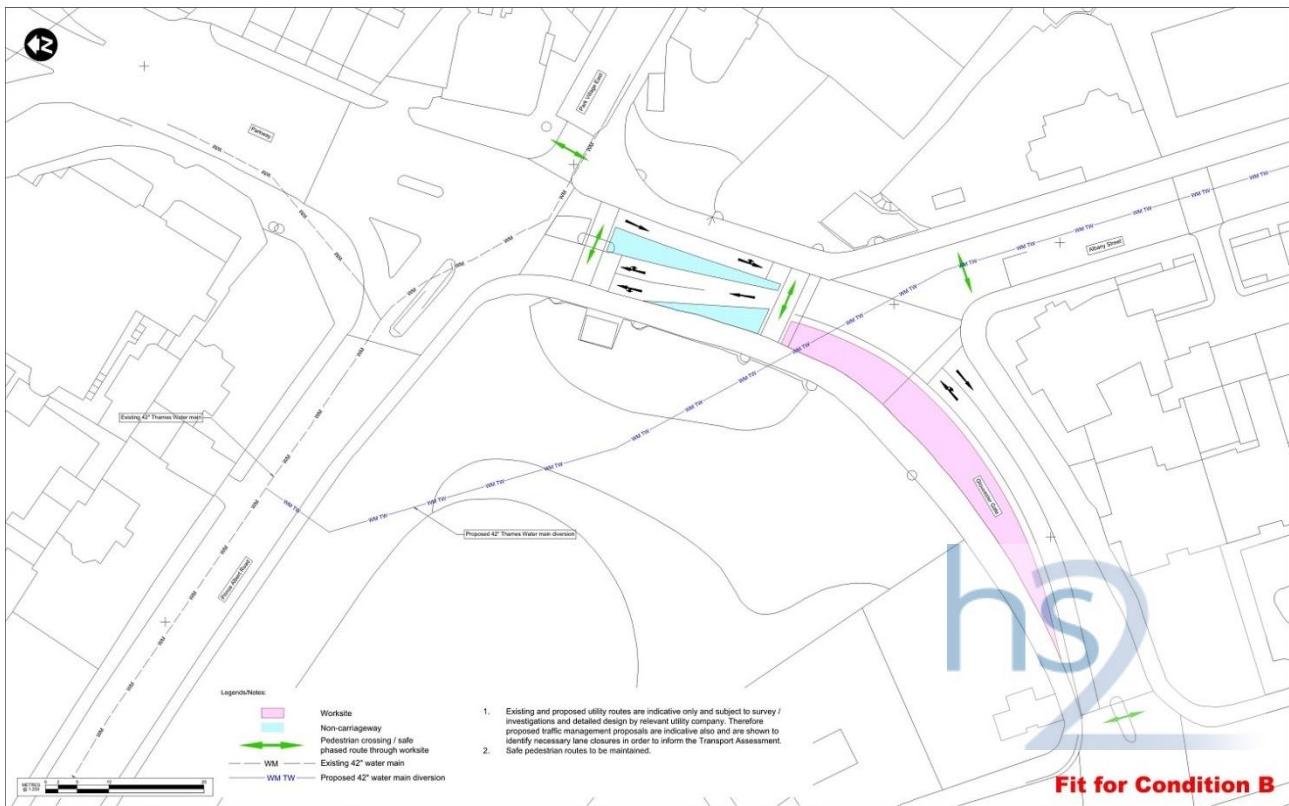


Figure 6-44: A4201 Parkway traffic management measures - stage 5

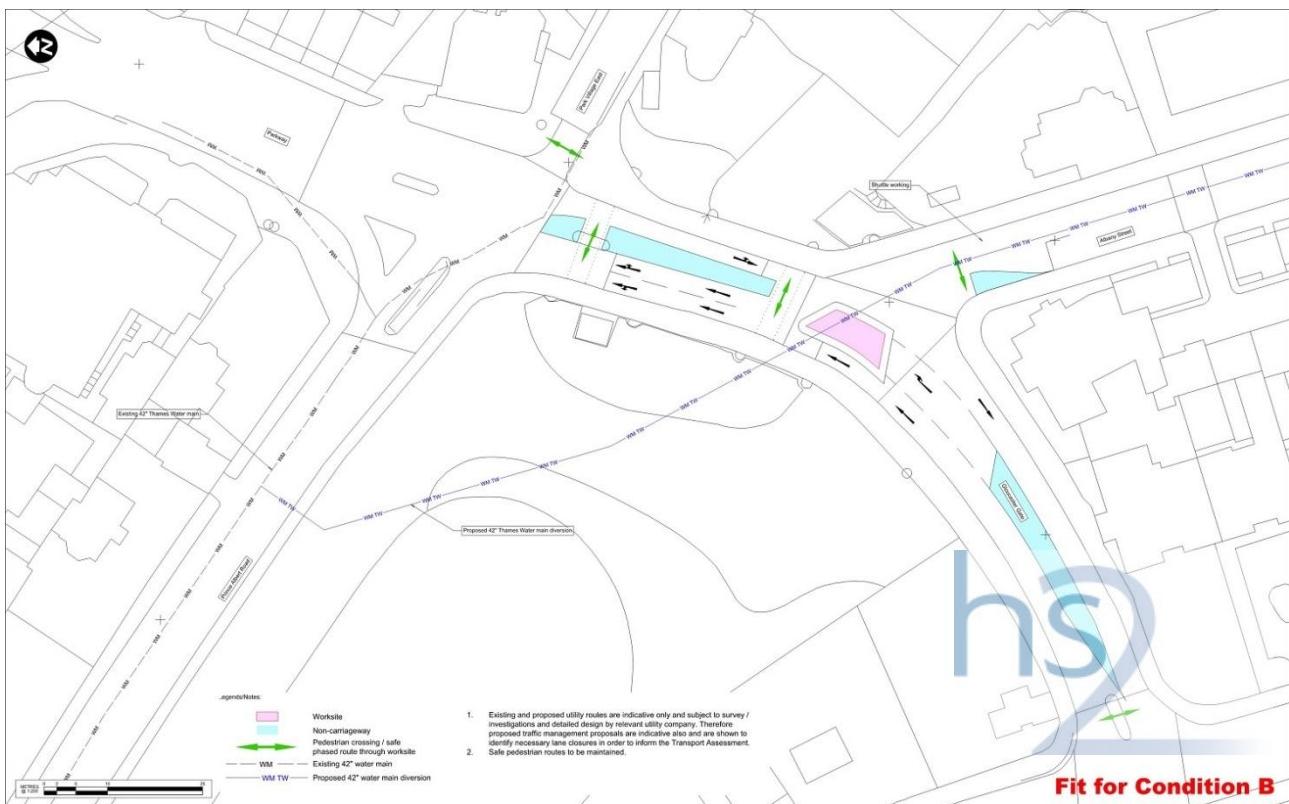
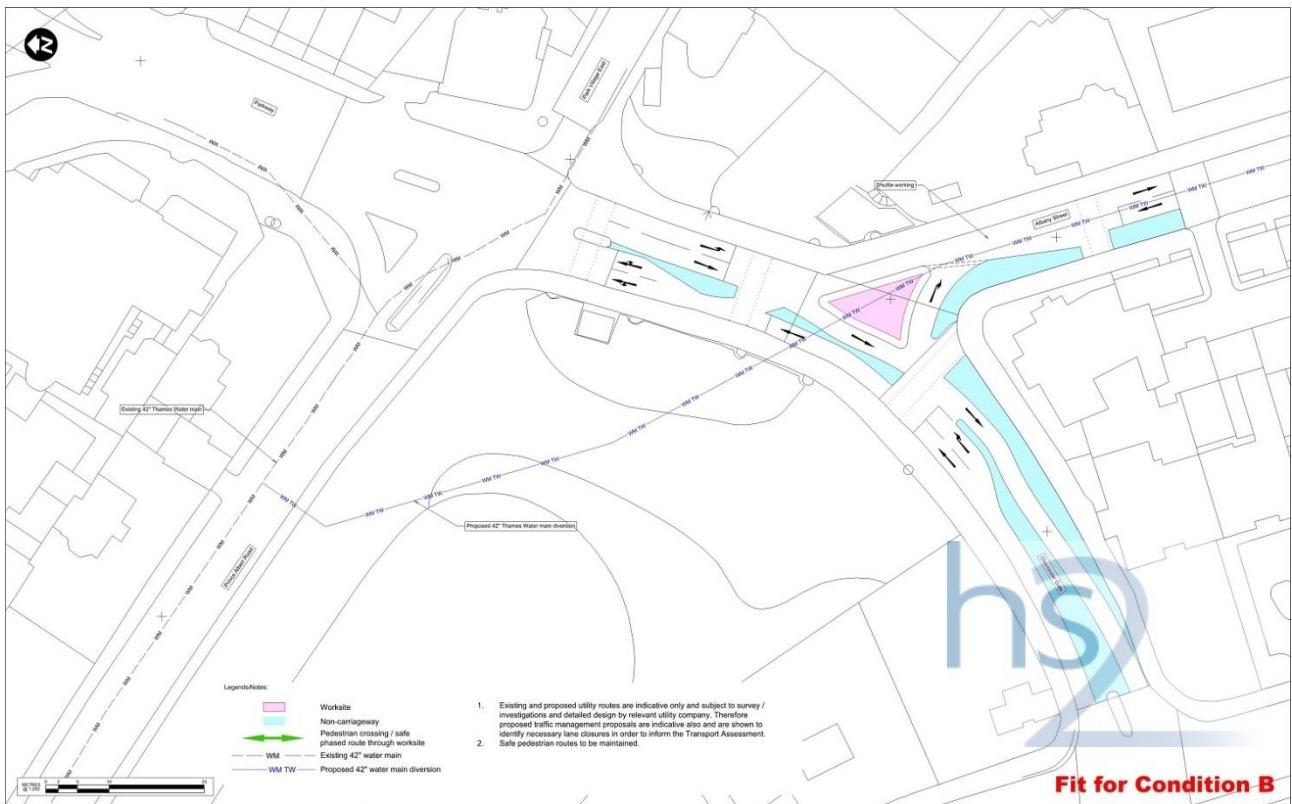


Figure 6-45: A4201 Parkway traffic management measures - stage 6



### Temporary road closures

6.4.47 Where roads will be temporarily closed during the construction programme, temporary diversions will be put in place to provide alternative routes for vehicles. Table 6-48 describes the temporary diversions or realignments required for each road for each direction of travel.

Table 6-48: Temporary diversions and re-alignments on the local highway network

Road closure	Travel direction	Alternative route
Granby Terrace overbridge	Eastbound	From Park Village East, left turn onto Stanhope Street, right turn onto Robert Street to A400 Hampstead Road Alternative route via A4201 Parkway
	Westbound	-
Mornington Street overbridge	Eastbound	From Gloucester Gate, ahead onto A4201 Parkway, right turn onto A503 Delancey Street and right turn onto Mornington Terrace
	Westbound	From Mornington Terrace, left turn onto A4201 Parkway, left turn onto A4201 Albany Street, left turn onto Robert Street and left onto Stanhope Street
Varndell Street at A400 Hampstead Road	Eastbound	From Varndell Street, left turn onto Stanhope Street, left turn onto Robert Street to A400 Hampstead Road
	Westbound	From A400 Hampstead Road, left turn onto Robert Street, right turn onto Stanhope Street to Varndell Street

Road closure	Travel direction	Alternative route
Park Village East	Northbound	From A400 Hampstead Road, left turn onto Mornington Crescent, right turn onto Clarkson Road and Mornington Terrace, left turn onto A503 Delancey Street, left turn onto A4201 Parkway
	Southbound	From A4201 Parkway, left turn onto A4201 Albany Street, left turn onto Robert Street and left turn onto Stanhope Street
Cardington Street	Northbound	From A501 Euston Road, right turn onto A400 Hampstead Road  From A501 Euston Road, left turn onto A4200 Eversholt Street, left turn onto Harrington Square onto A400 Hampstead Road
	Southbound	From A400 Hampstead Road, left turn onto Drummond Street, right turn onto North Gower Street and left turn onto A501 Euston Road
	Eastbound and westbound	From Starcross Street, left turn onto North Gower Street
Drummond Street at Cobourg Street	Eastbound	From Drummond Street, left onto North Gower Street, left turn onto A501 Euston Road
	Westbound	As existing
Melton Street	Northbound	From A501 Euston Road, right turn onto A400 Hampstead Road  From A501 Euston Road, left turn onto A4200 Eversholt Street, left turn onto Harrington Square and onto A400 Hampstead Road
	Southbound	From A400 Hampstead Road, left turn onto Drummond Street, right turn onto North Gower Street and left turn onto A501 Euston Road
	Eastbound and Westbound	From Euston Street, left turn onto North Gower Street
Gordon Street	Northbound	From Gordon Street, right turn onto Endsleigh Gardens, left turn onto Upper Woburn Place, left turn onto A501 Euston Road
	Southbound	From A501 Euston Road, left/right turn onto A4200 Upper Woburn Place, left turn onto Endsleigh Gardens onto Gordon Street

## Utility works

- 6.4.48 In addition to the station and directly rail related works, a series of other highway works will be required during construction of the Proposed Scheme, mostly associated with utility works. These include:
- provision of connections to two UK Power Networks substations in the Pentonville and Camden areas (a proposed substation in Calshot Street and St. Pancras substation), which will be undertaken in short sections along the proposed routes, with each section expected to take less than four weeks. The routes are not, at any stage, expected to be fully closed to vehicular traffic;
  - utility works in the A503 Delancey Street area to divert telecommunication cables;
  - possible utility works required on Endsleigh Gardens, should any space

constraints arise during the utility works on A501 Euston Road, which, if needed, would require sections of Endsleigh Gardens to be closed to facilitate the works;

- possible utility works required on Mornington Terrace, should any space constraints arise during the works on Park Village East, which, if needed, would require sections of Mornington Terrace to be closed to facilitate the works;
- possible sewer replacement and lining works along Augustus Street;
- utility works required on North Gower Street, Gower St and Gower Place, to allow 132kV electricity cables to be diverted across A501 Euston Road. It is not envisaged that these works will result in a road closure;
- further utility works with possible closures may be required on the following roads: Aldenham Street; Polygon Road; Lancing Street; Drummond Crescent; and Doric Way; and
- any partial or full road closures, as a result of these works, will be limited to a period of less than approximately four weeks.

6.4.49 As described in Table 6-47, the utility works will include the replacement of gas mains on A4200 Eversholt Street. It is also possible that a Thames Water sewer, also on A4200 Eversholt Street, may be diverted along Phoenix Road and Chalton Street. However, should this sewer diversion be required, the works on Phoenix Road and Chalton Street are not expected to coincide with the works on A4200 Eversholt Street.

#### *Construction phase access diagrams*

6.4.50 Construction will impact the way pedestrians enter and exit Euston station and therefore, during the different stages of the construction programme routes for pedestrians will be managed to maintain adequate routes.

6.4.51 Traffic management measures will be introduced to reduce the impact on pedestrians in the immediate area of the construction works. Given the large pedestrian demand in the area, adequate measures need to be considered in the next stages of design to ensure walkability and pedestrian safety in the area is not compromised.

6.4.52 During construction, sections of footways will need to be closed with temporary alternative routes in place to enable construction works to occur. These streets include:

- Granby Terrace overbridge;
- Cardington Street (permanent closure);
- Starcross Street at Cobourg Street;
- Drummond Street at Cobourg Street;

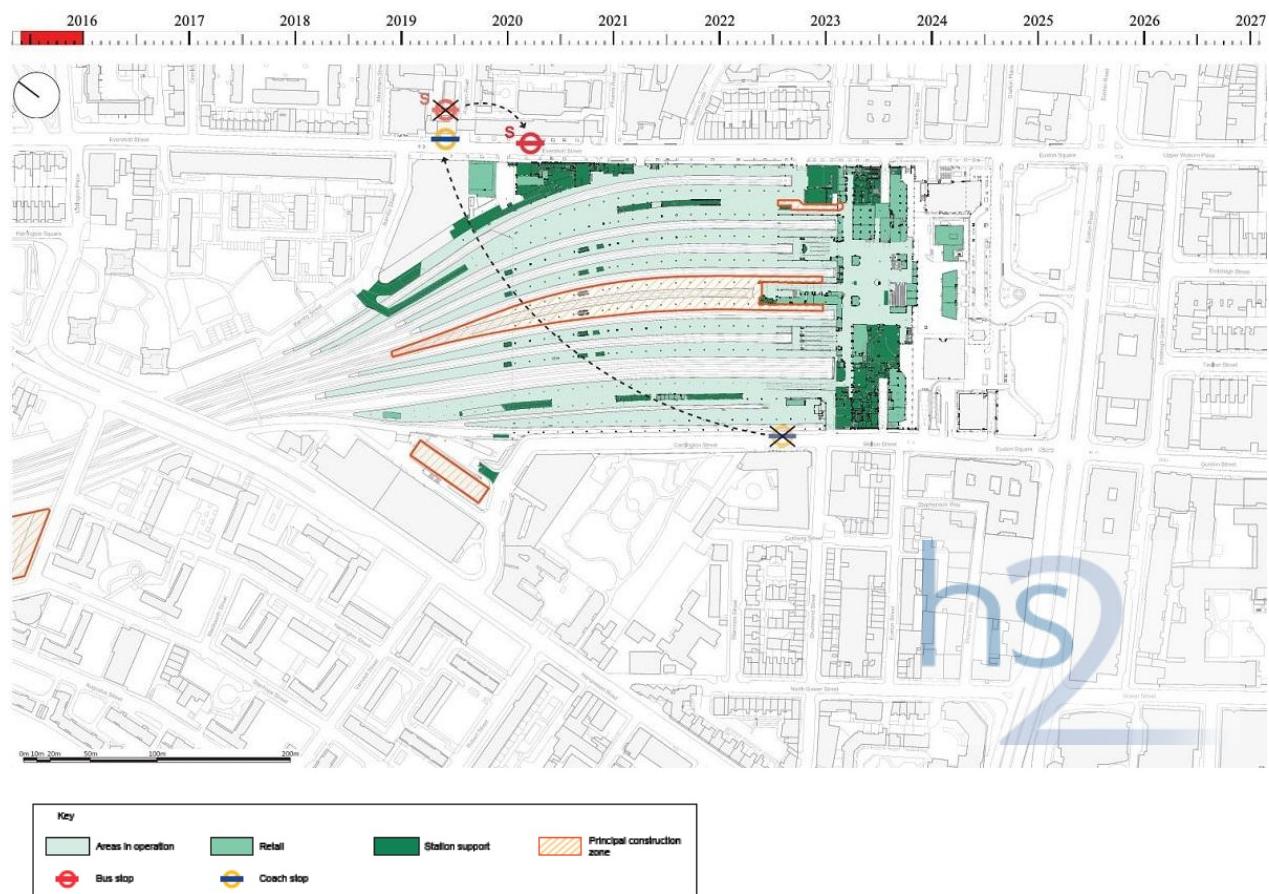
- Cobourg Street (permanent closure);
- Melton Street (south of Cardington Street);
- Euston Street at Cobourg Street; and
- Stephenson Way.

6.4.53 Additionally, three paths used by the public and one footpath (they have been treated in the same way as PRoW for the purposes of the TA) will be closed due to the construction works. These are:

- path across St. James' Gardens;
- path across Euston Square Gardens east;
- path across Euston Square Gardens west; and
- Harrington Street footpath.

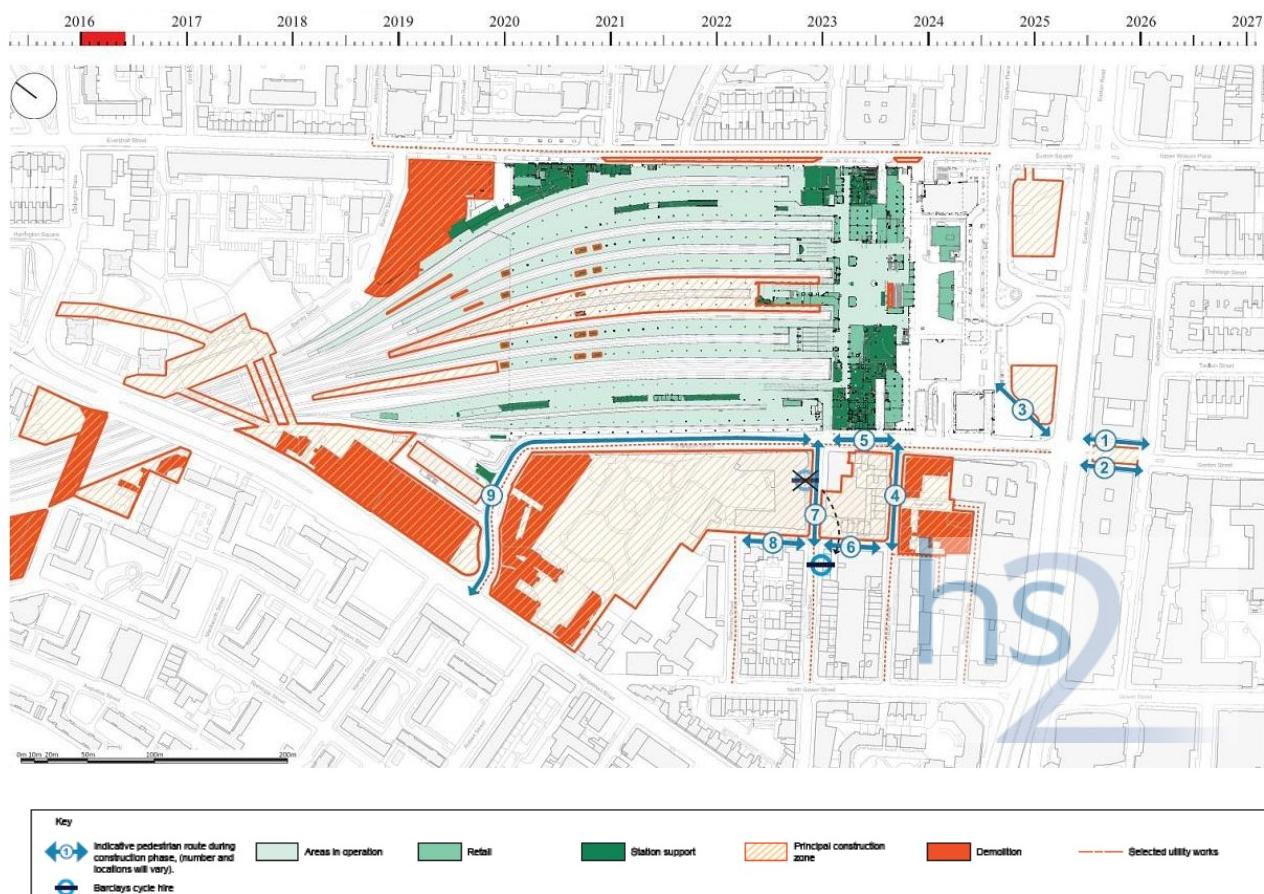
6.4.54 Pedestrian access to Euston station will be maintained at all times during the construction programme. Access in and around Euston Station and Euston LU station will be maintained during the construction phases required for its redevelopment, from 2015 until 2026. The following diagrams show the public access during the principle construction phases. There is corresponding narrative to explain the construction activities, the implications on access and servicing and proposed mitigation measures. Access to Euston station between June 2015 and December 2015 can be seen in Figure 6-46.

Figure 6-46: Pedestrian access to Euston station (June 2015 - December 2015)



- 6.4.55 On A4200 Eversholt Street, 'Aldenham Street' southbound bus stop S will be relocated to the south, by approximately 70m, so it can be served by bus routes which will start from the new Northern Bus Standing Area, when the Proposed Scheme is in operation, and also to create space for a temporary coach parking bay during the construction phase.
- 6.4.56 Access to Euston station between January 2016 and May 2016 can be seen Figure 6-47.

Figure 6-47: Pedestrian access to Euston station (January 2016 - May 2016)



6.4.57 The following changes take place during this phase:

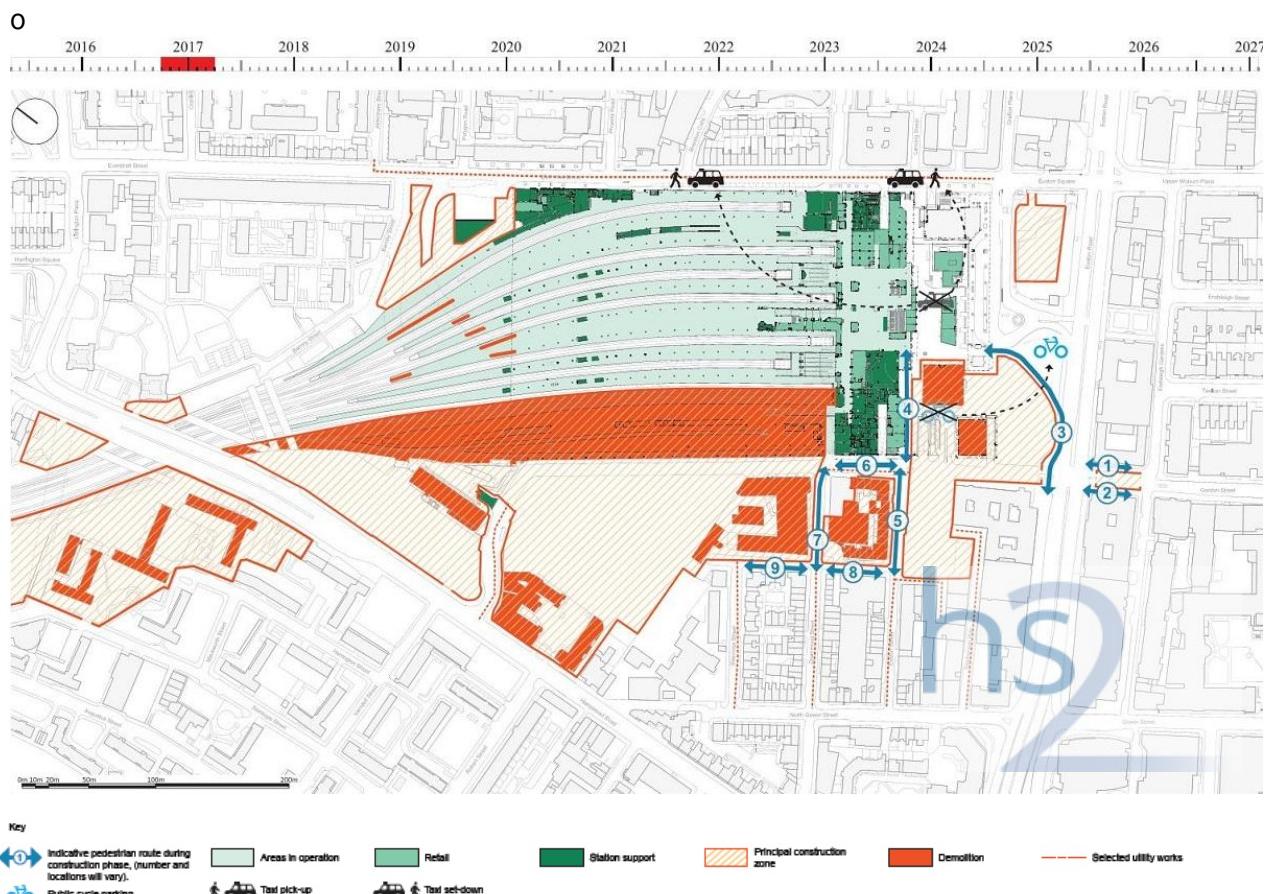
- Gordon Street permanently closed to vehicular traffic between junction with Euston Road and junction with Endsleigh Gardens;
- temporary taxi pick-up/drop off area is being built, reducing the footpath width between A4200 Eversholt Street and the eastern edge of Euston station;
- Granby Terrace overbridge gets demolished impacting traffic, pedestrian and cycle routes;
- Starcross Street, Drummond Street and Euston Street are now cul-de-sac's with no vehicular access to Cobourg Street;
- Cobourg Street is permanently closed to vehicular traffic;
- no vehicular access to Regnart Buildings;
- Stephenson Way now a cul-de-sac with no access to Euston Street for vehicles or pedestrians;
- pedestrian route across St. James' Gardens permanently closed;
- pedestrian route from Granby Terrace overbridge to Harrington Street is

permanently closed. A temporary diverted route will be available along Stanhope Street and Varndell Street;

- Eastern and western route across Euston Square Gardens no longer available due to the establishment of site compound; and
- Drummond Street docking station relocated westward along Drummond Street.

**6.4.58** Access to Euston station between October 2016 and March 2017 can be seen in Figure 6-48.

Figure 6-48: Pedestrian access to Euston station (October 2016 and March 2017)



**6.4.59** The following changes take place during this phase:

- temporary taxi pick-up/drop off area opens on A4200 Eversholt Street and existing facility closes. Increased traffic volumes along A4200 Eversholt Street and reduced footpath width along the station edge;
- 60 Sheffield stand, cycle parking spaces move from the west side of Euston station piazza (near the ticket office), Sainsbury's supermarket and 40 Melton Street to a space next to the existing bus station entrance from A501 Euston Road;

- Cardington Street access from A400 Hampstead Road now closed to general traffic, pedestrians and cyclists and is now providing access to the National Temperance construction compound for construction traffic;
- Melton Street closed at junction with Euston Road for general traffic, pedestrians and cyclists;
- pedestrian access routes to Euston station maintained from Drummond Street and Euston Street (routes 5 and 7);
- pedestrian route from A501 Euston Road to Euston station across Euston Square Gardens west established; and
- A501 Euston Road/Melton Street changes to a two stage junction, effectively operating as a signalised pelican crossing.

6.4.60 Access to Euston station between April 2017 and July 2018 can be seen in Figure 6-49 and Figure 6-50 respectively.

Figure 6-49: Pedestrian access to Euston station (April 2017 - November 2017)

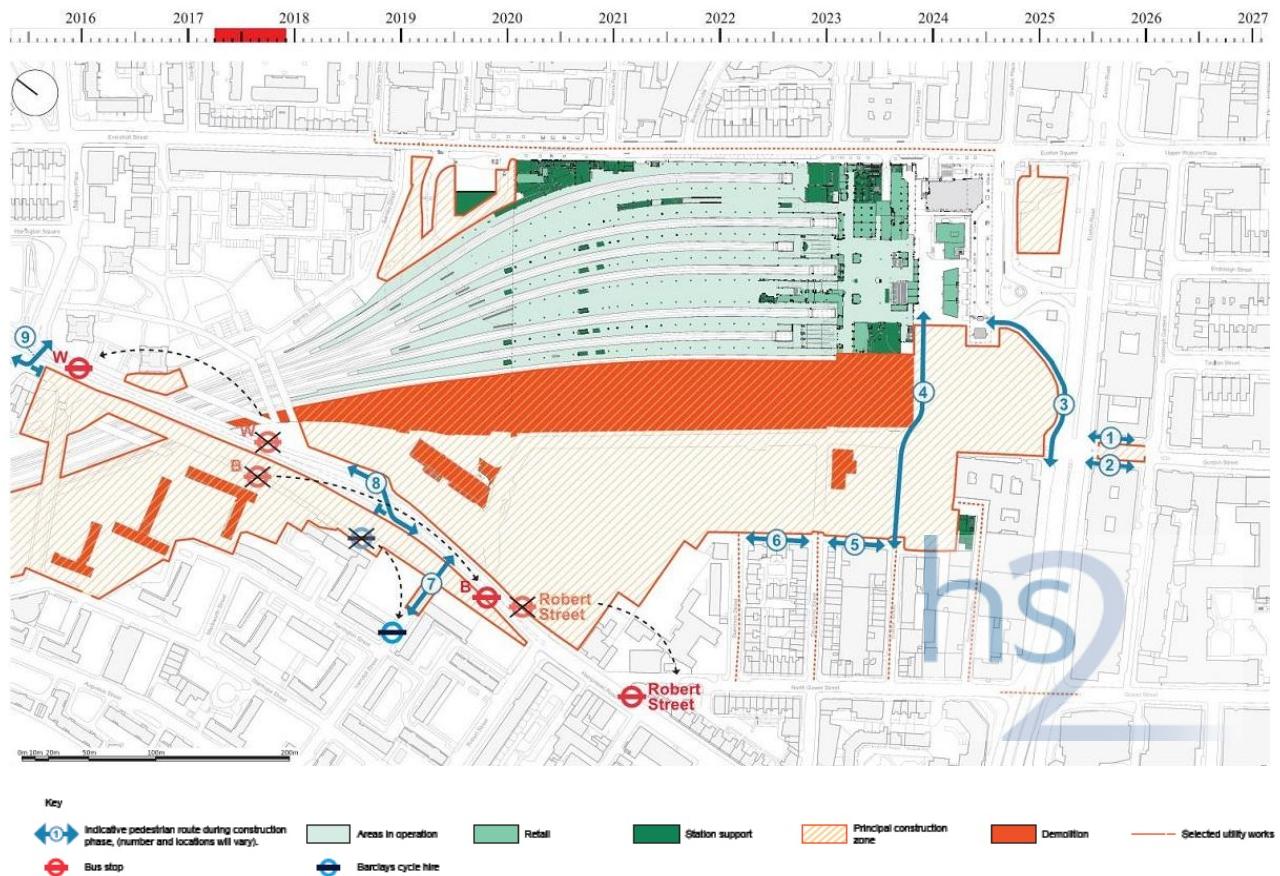
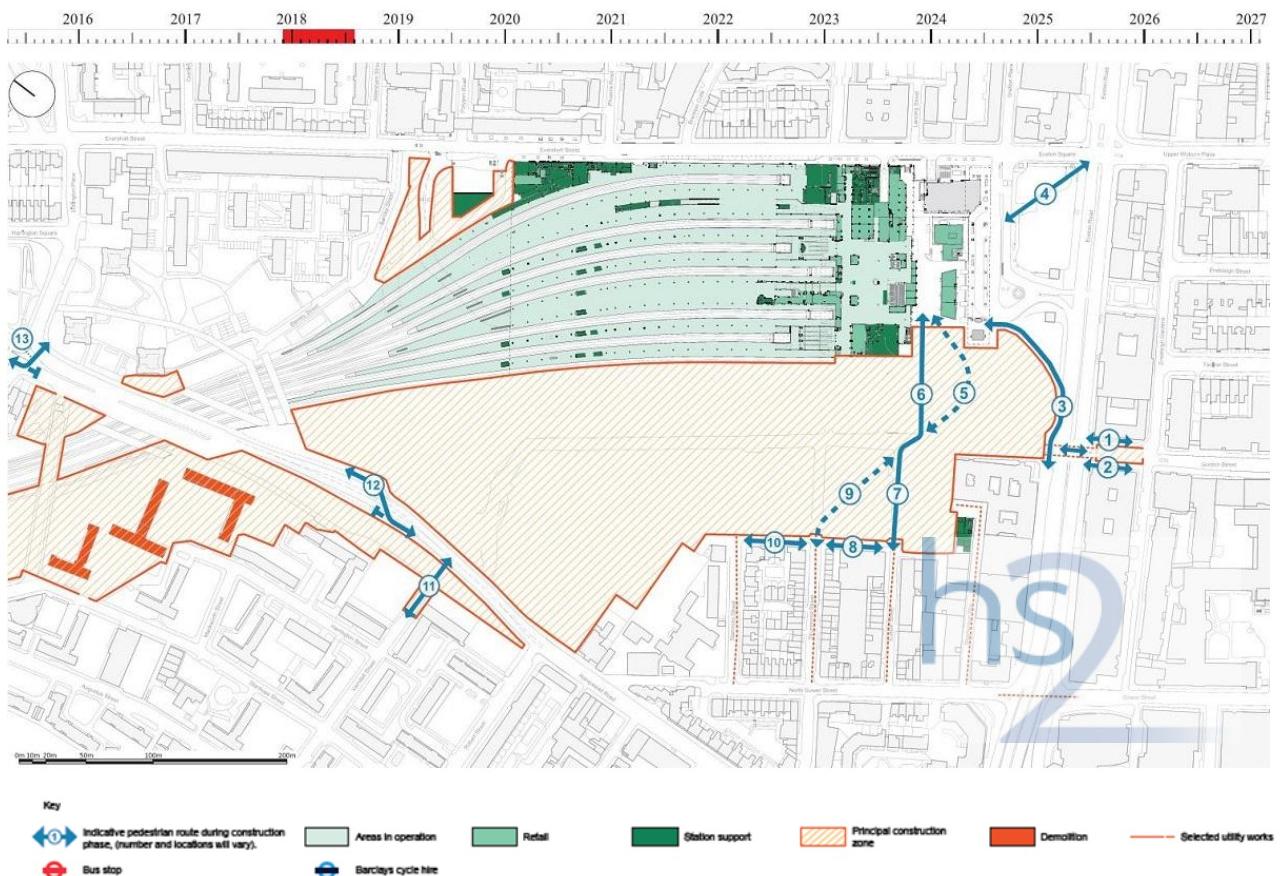


Figure 6-50: Pedestrian access to Euston station (December 2017 - July 2018)



6.4.61 The following changes take place during these phases:

- A400 Hampstead Road works reduces carriageway to a single lane in each direction impacting road capacity for general traffic and buses;
- the footway on the west side of A400 Hampstead Road overbridge is closed during this phase. Pedestrian refuges will be installed to the north and south of the bridge to provide pedestrians with safe facilities to cross from the west footway to the east footway;
- on A400 Hampstead Road, 'Silverdale' northbound bus stop B will be relocated to the south by 100-200m and southbound bus stop W will be relocated to the north by 100-200m, both due to the construction of the A400 Hampstead Road overbridge;
- on A400 Hampstead Road, 'Robert Street' southbound bus stop will be relocated to the south by approximately 100m, due to the construction of the new junction of A400 Hampstead Road with Robert Street and the entrance to the station taxi facility. The corresponding northbound bus stop will be unaffected;
- A400 Hampstead Road (Cartmel) docking station relocated due to the

construction of the new A400 Hampstead Road overbridge. The docking station is likely to be relocated westward onto Varndell Street;

- new utility bridge opens for cyclists across the Ampthill Estate during A400 Hampstead Road works;
- Varndell Street access to/from A400 Hampstead Road closed permanently to motor vehicles, but access for pedestrians and cyclists is maintained;
- pedestrian route from the end of Drummond Street to Euston station is temporarily closed. Pedestrian access from the west is via Euston Street only;
- North to south connection (routes 5 and 6) maintained to provide access to Euston Street pedestrian route from Starcross Street and Drummond Street;
- re-aligned Granby Terrace overbridge open two-way for construction traffic only;
- alternative pedestrian route (routes 6 and 9) available to/from the west of the station via Drummond Street, to be used as an alternative to Euston Street to suit construction works (December 2017 - July 2018); and
- pedestrian route across Euston Square Gardens east re-opened for pedestrians (December 2017 - July 2018).

6.4.62 Temporary realigned routes will also be in place along A400 Hampstead Road, while construction work is being undertaken on the new A400 Hampstead Road overbridge. The first stage of construction works on A400 Hampstead Road, on the southern side of the bridge, between quarter two of 2017 and quarter four of 2019, will see the carriageway reduced to one lane in each direction between Varndell Street and Harrington Square.

6.4.63 During this stage of construction, a pedestrian footway will be provided at the southern section of the works. A refuge island will be provided approximately 10m north of Robert Street, at which point, pedestrians using the southern footway will be required to cross and continue their journey on the northern side of the road. Access to Euston station between August 2018 and December 2019 can be seen in Figure 6-51 to Figure 6-53.

Figure 6-51: Pedestrian access to Euston station (August 2018 - December 2018)

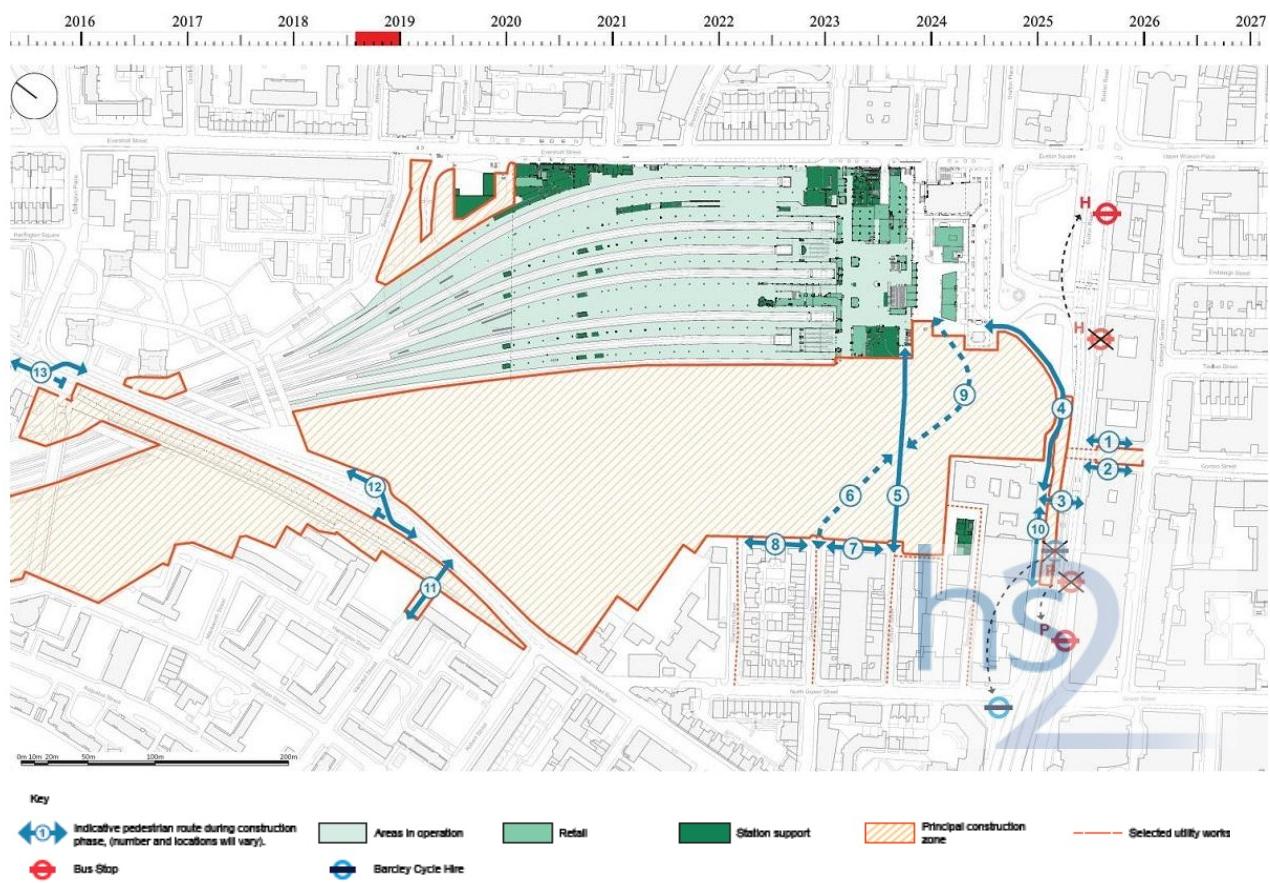


Figure 6-52: Pedestrian access to Euston station (January 2019 - June 2019)

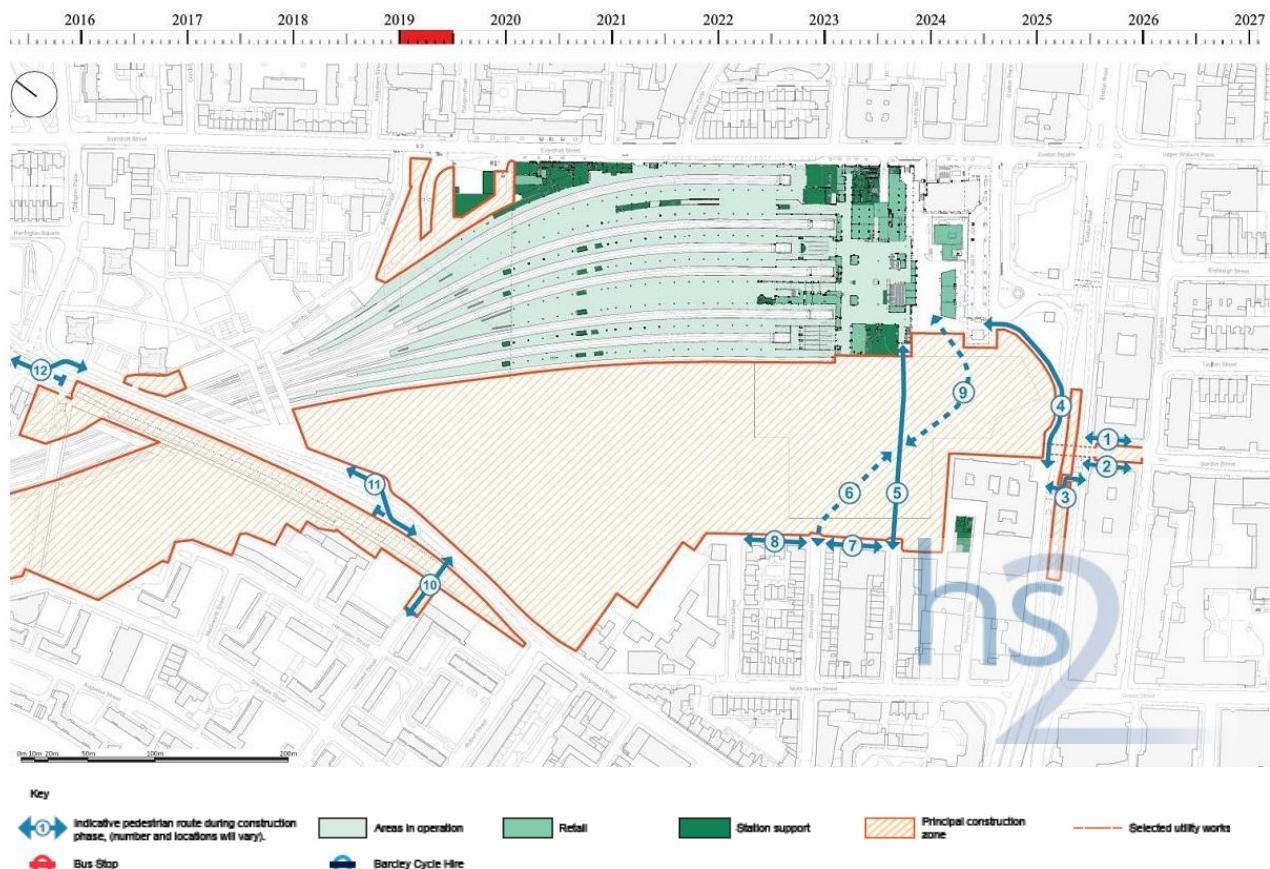
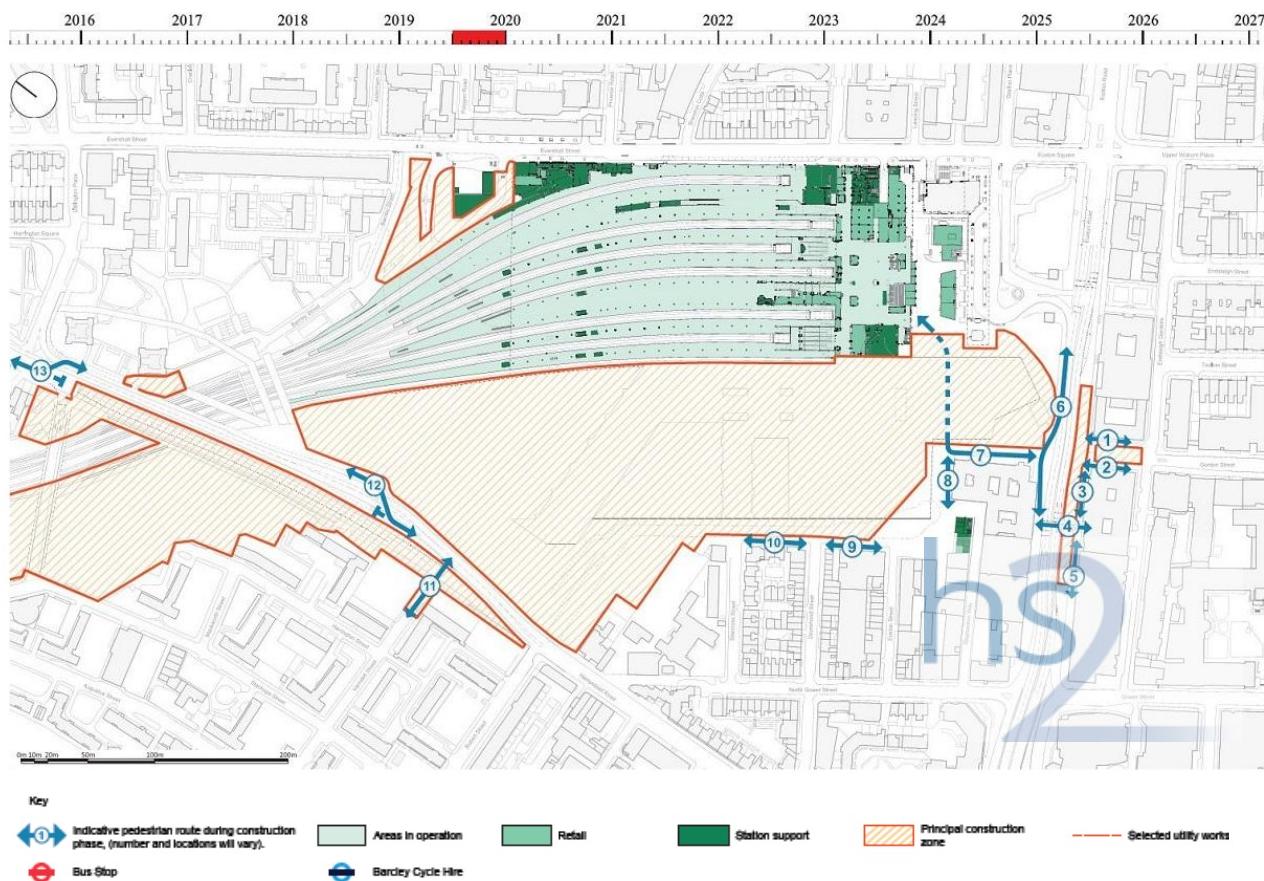


Figure 6-53: Pedestrian access to Euston station (July 2019 - December 2019)



#### 6.4.64 The following changes take place during these phases:

- the footway on the west side of A400 Hampstead Road overbridge is closed during this phase. Pedestrian refuges will be installed to the north and south of the bridge to provide pedestrians with safe facilities to cross from the west footway to the east footway;
- as a result of A501 Euston Road utility works:
  - reduce A501 Euston Road from six lanes to four lanes, for approximately 150m, by removing the bus lanes, impacting A501 Euston Road capacity for private vehicles, buses and cyclists;
  - a safe pedestrian route on the north side of A501 Euston Road is maintained throughout these phases. The pedestrian route will be realigned, as necessary, to accommodate the works;
  - on A501 Euston Road, 'Euston Station' westbound bus stop H will be relocated to the east, by approximately 90m, due to the construction of the sub-surface pedestrian route beneath A501 Euston Road;
  - on A501 Euston Road, 'Euston Square Station' westbound bus stop P will be relocated to the west, by approximately 30m, due to the construction of the sub-

surface pedestrian route beneath A501 Euston Road;

- A501 Euston Road docking station will be relocated during this phase. The docking station is likely to be relocated westward, close to the A501 Euston Road junction with North Gower Street; and
- A501 Euston Road (Melton Street/Gordon Street) pedestrian crossing is relocated east.
- Phase July 2019 to December 2019 only:
  - access to this route now available from Starcross Street, Drummond Street, Euston Street and Stephenson Way.

#### 6.4.65 Access to Euston station between January 2020 and October 2021 can be seen in Figure 6-54 and Figure 6-55.

Figure 6-54: Pedestrian access to Euston station (January 2020 - September 2020)

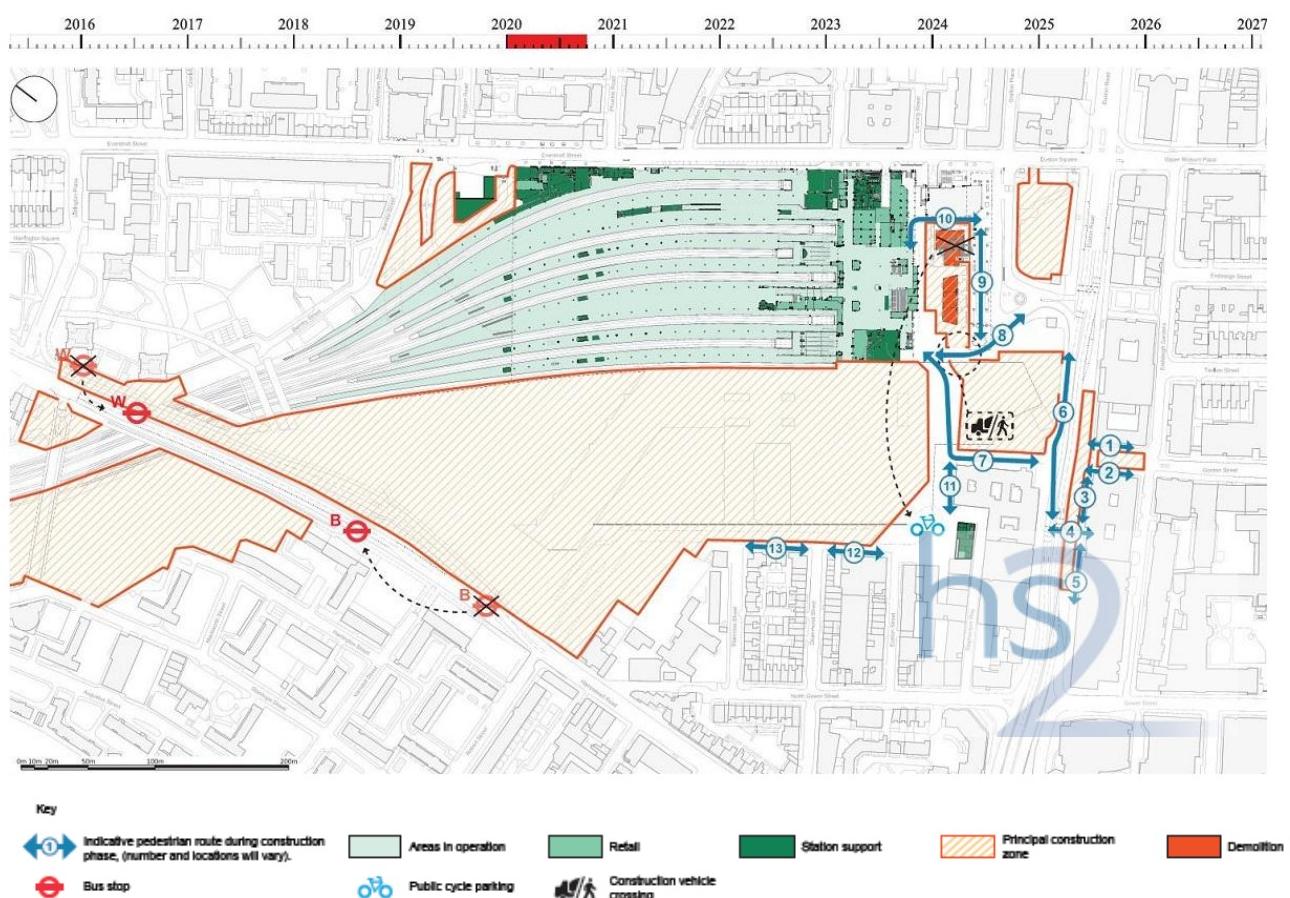
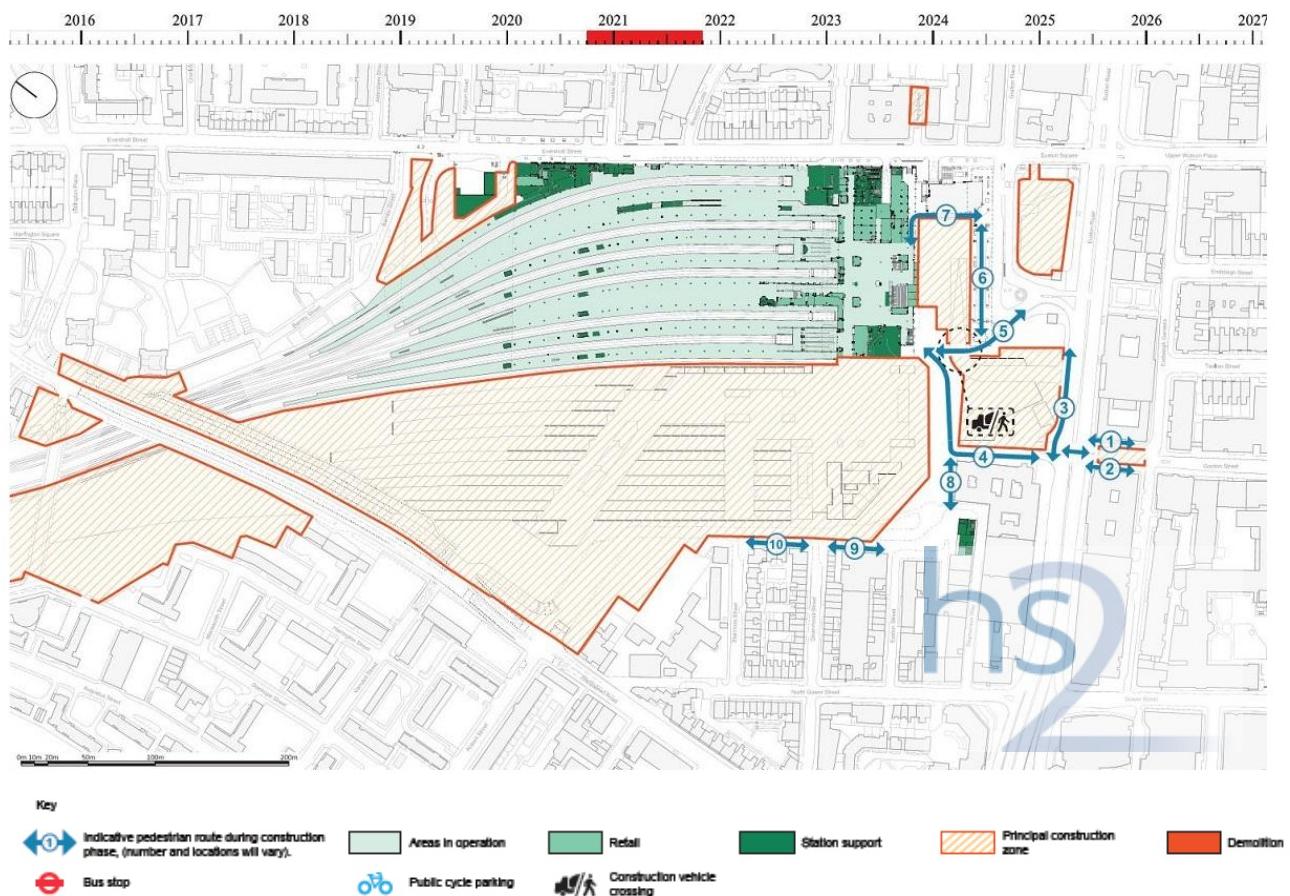


Figure 6-55: Pedestrian access to Euston station (October 2020 - October 2021)



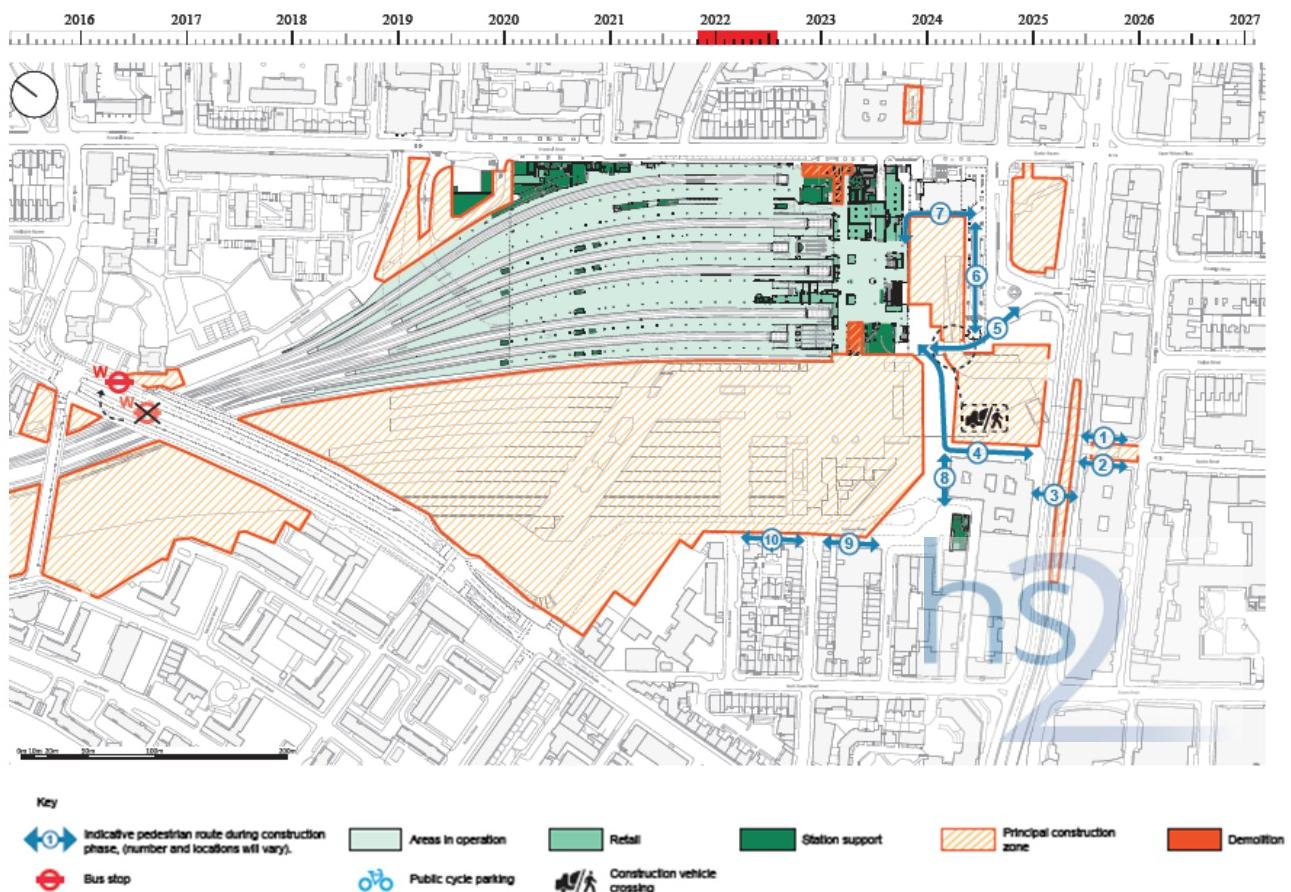
6.4.66 The following changes take place during this phase:

- traffic temporarily diverted onto completed south side of new A400 Hampstead Road overbridge;
- Footways available on both sides of completed section of A400 Hampstead Road overbridge;
- cycle access across Hampstead Road overbridge now on carriageway;
- LUL Ticket Hall works start and result in two new temporary pedestrian routes being established (routes 9 and 10);
- Euston Square Gardens (East) Satellite Compound established, resulting in the removal of the pedestrian route across the gardens;
- bus stop B relocated to its permanent location;
- bus stop W will be relocated slightly to the south, due to the construction of the north side of A400 Hampstead Road overbridge;
- 124 cycle parking spaces provided using Josta, two tier racks near the centre of Euston station piazza, in an 'L' shape around Nandos, to be relocated to southern end of new Cobourg street; and

- October 2020 to October 2021 only, A501 Euston Road utility works complete.

- 6.4.67 From quarter one of 2020 to quarter four of 2021, the construction works on the northern side of the bridge will limit the number of lanes on A400 Hampstead Road to three, one southbound lane and two northbound lanes. One of the northbound lanes will be a bus lane. Again, the temporary layout allows for pedestrian footways on both sides of the road.
- 6.4.68 Access to Euston station between November 2021 and July 2022 can be seen in Figure 6-56.

Figure 6-56: Pedestrian access to Euston station (November 2021 - July 2022)



- 6.4.69 The following changes take place during this phase:
- A400 Hampstead Road overbridge works complete and in operation for public use while the southbound bus stop W is relocated to its permanent location;
  - Granby Terrace Bridge reopens for public use; and
  - 'quick bridge' over A501 Euston Road to enable LU subway works. A501 Euston Road reduced to 4 lanes.
- 6.4.70 Access to Euston station between August 2022 and December 2026 can be seen in Figure 6-57, Figure 6-58, Figure 6-59 and Figure 6-60..

Figure 6-57: Pedestrian access to Euston station (August 2022 - March 2023)

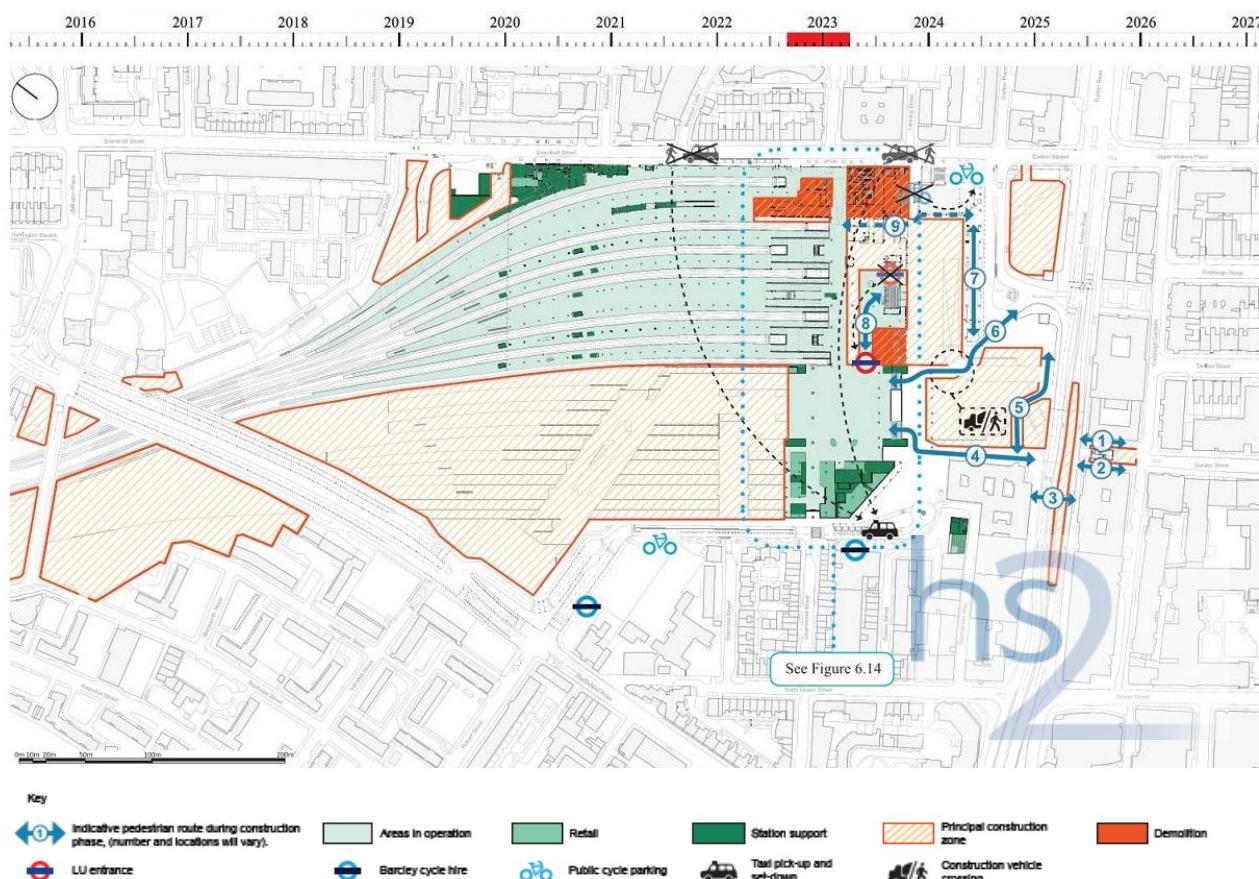


Figure 6-58: Pedestrian access to Euston station (April 2023 - July 2023)

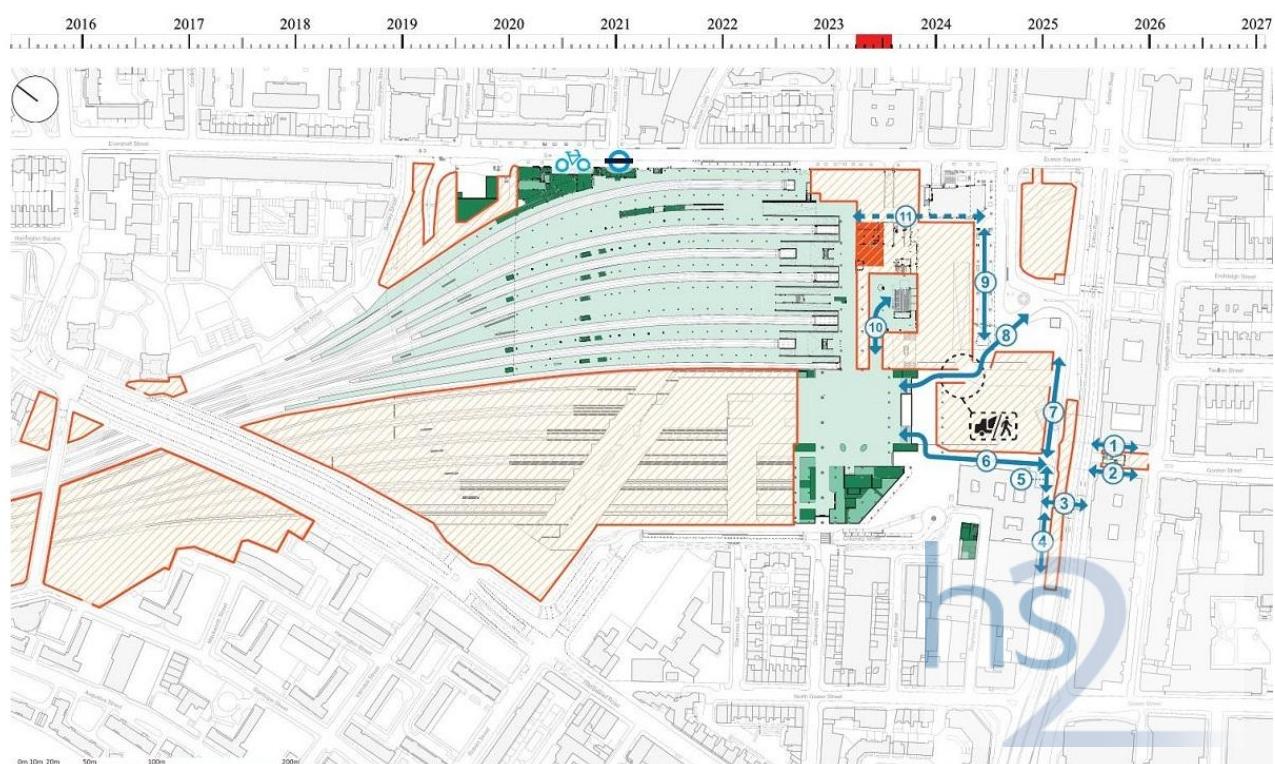




Figure 6-59: Pedestrian access to Euston station (December 2023 - April 2024)

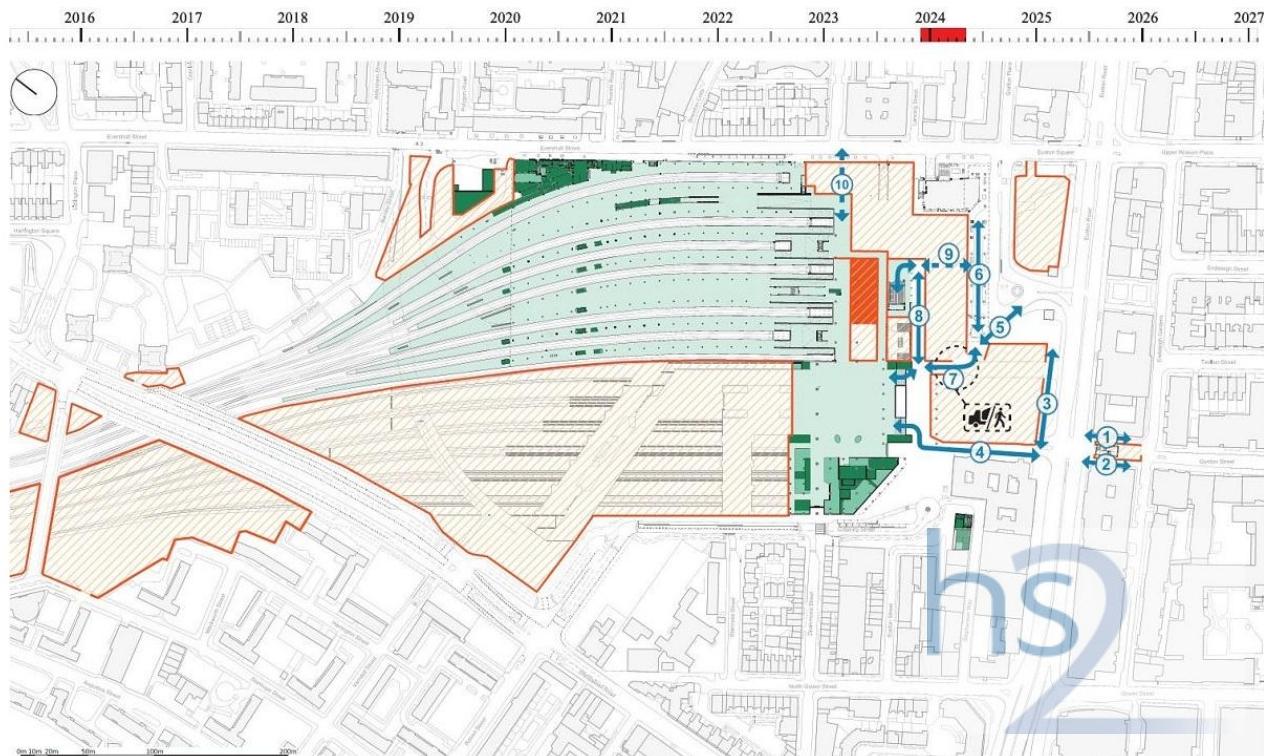
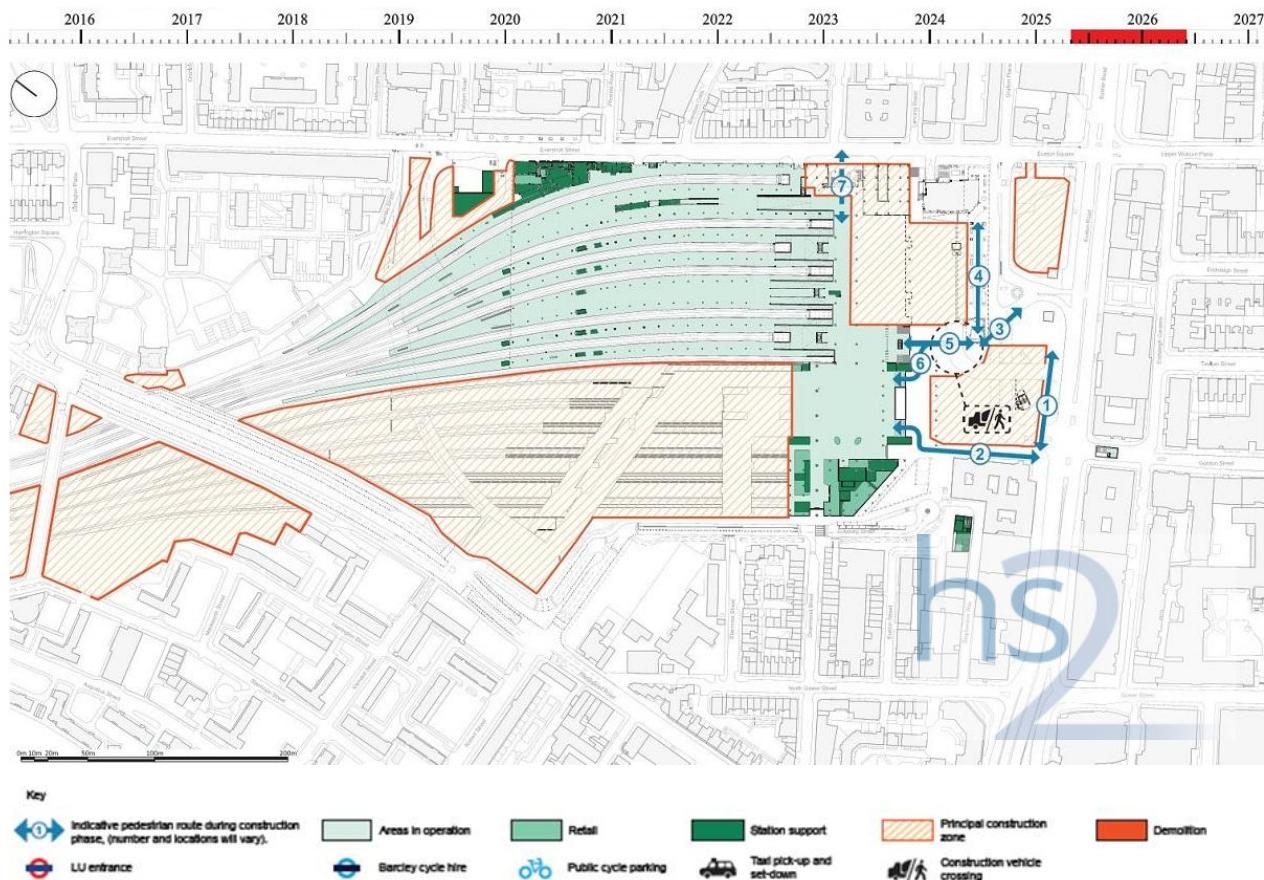


Figure 6-6o: Pedestrian access to Euston station (April 2025 - May 2026)

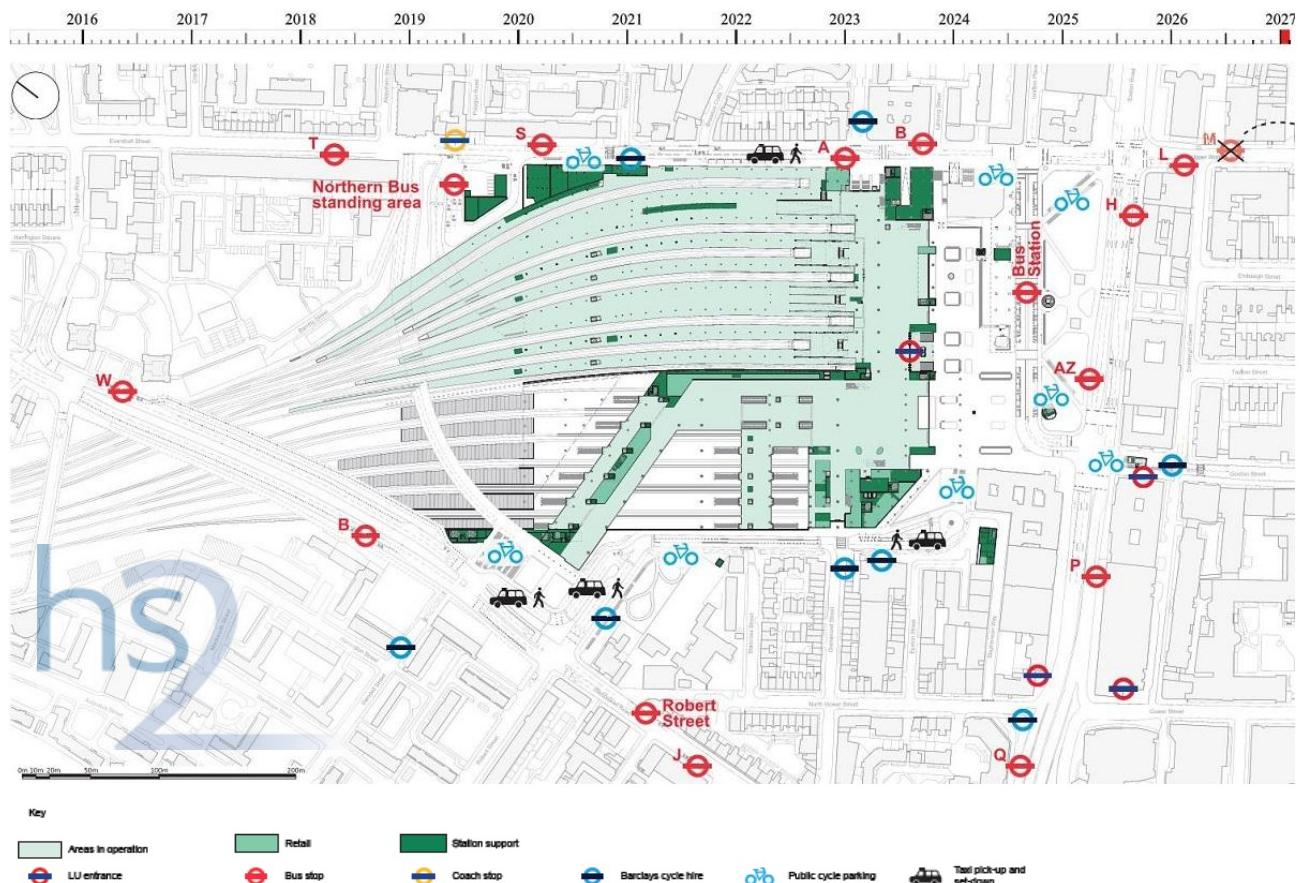


6.4.71 The following changes take place during these phases:

- Cobourg Street opens for public including taxi rank;
- new taxi pick-up facility, public drop-off facility, and off-road bicycle facility complete and in operation;
- A4200 Eversholt Street temporary taxi facility permanently converted to a public set-down facility;
- new concourse in operation changing pedestrian passageway locations;
- 50 cycle parking spaces on the east side of Euston station piazza near Marks & Spencer and William Hill/One Eversholt Street relocated;
- a safe pedestrian route on the north side of A501 Euston Road is maintained throughout this phase. The pedestrian route will be realigned, as necessary, to accommodate the works;
- new cycle docking station is available on A4200 Eversholt Street; and
- LU entrances open on Gordon Street including cycle hire docking station.

6.4.72 Access to Euston station when Euston station is fully operational can be seen in Figure 6-61.

Figure 6-61: Pedestrian access to Euston station (January 2027 - Euston station fully operational)



6.4.73 The following changes take place during this phase:

- east west overbridge open for pedestrians and cyclists;
- new bus street open and in operation;
- new bus standing area off A4200 Eversholt Street open and in operation;
- all pedestrian paths within the Euston Square Gardens open permanently;
- new A4200 Hampstead Road forecourt open and in operation;
- new unpaid pedestrian link in operation;
- all new bus stop locations in operation;
- all cycle parking and cycle docking stations open and in operation; and
- A4200 Eversholt Street taxi and private car set down in operation.

#### Avoidance and mitigation measures

6.4.74 The following measures have been included as part of the engineering design of the Proposed Scheme and will avoid or reduce impacts on transport users:

- heavy goods vehicle (HGV) routeing as far as possible along the strategic road

network and using designated roads for access. These features are shown on Map CT-05-001 (Volume 2, Map Book 1);

- site workers to use public transport to access the site with no on-site workers' parking;
- the A400 Hampstead Road bridge will require reconstruction. The bridge currently carries a six lane road. Reconstruction will involve removing one half of the width and replacing it, before repeating for the other half. Throughout reconstruction, one lane of traffic will be kept open in each direction. A footway will be maintained at all times during construction. Two temporary utilities bridges will be provided during construction, one of which will provide a route for cyclists;
- the proposed sub-surface pedestrian route under Euston Square Gardens and across A501 Euston Road, and the connections to the Euston Square underground station platforms, will be constructed using open cut excavation techniques and will include diversion of various utilities that will require the temporary closure of the eastbound and westbound bus lanes on A501 Euston Road. Construction will be phased across the road, in order to maintain two lanes in each direction, compared to the existing three lanes in each direction;
- passenger access by car will be retained with temporary facilities for passenger drop-off in A4200 Eversholt Street, although no public car parking will be provided during construction phases;
- the taxi facility will be relocated to A4200 Eversholt Street, within 400m of its current position, before moving to its permanent location on Cobourg Street, as part of the Proposed Scheme in quarter three 2022. The detailed arrangements for temporary taxi operations will be developed with TfL and Camden Council; and
- cycle parking capacity will be maintained and specific temporary cycle parking locations proposed in consultation with TfL and LBC, as required. Any Barclays cycle docking stations affected by construction will be relocated.

6.4.75 The draft CoCP will seek to reduce deliveries of construction materials and equipment, thus minimising construction lorry trip generation, especially during peak traffic periods. The draft CoCP will include HGV management and control measures.

6.4.76 The number of private car trips to and from the site (both workforce and visitors) will be minimised with no provision for workers' parking. This objective will be supported through an over-arching framework travel plan that will set out how travel plans can be used, along with a range of potential measures to mitigate the impacts of traffic and transport movements associated with construction of the Proposed Scheme. As part of this, a construction workforce travel plan will be put into operation with the aim of encouraging the use of sustainable modes of transport.

6.4.77 The measures in the draft CoCP include clear controls on vehicle types, hours of site operation and routes for heavy goods vehicles, to reduce the impact of road-based construction traffic. In order to achieve this, generic and site specific traffic management measures will be implemented on or adjacent to public roads, bridleways, footpaths and other paths (treated in the same way as PRoW for the purposes of the TA) affected by the Proposed Scheme, as necessary.

6.4.78 Specific management measures will include: the core site operating hours, as set out in the draft CoCP, will be 08:00-18:00 on weekdays and 08:00-13:00 on Saturdays. Site staff and workers will generally arrive before the morning peak hour and depart after the evening peak hour, although certain specific construction activities will require extended working hours for reasons of engineering practicability (draft CoCP Section 5.2).

6.4.79 Planned NR track possessions will be used to facilitate civil engineering works affecting the existing rail network. These possessions will be generally limited to weekends and mid-week nights to facilitate those construction activities planned outside the core working hours and to reduce disruption to rail passengers.

### **Euston - Station and Approach (CFA1) construction impacts**

6.4.80 Throughout this section, the AM and PM peak periods and hours are referred to frequently. For clarity these relate to the following times of the day:

- AM peak period - 07:00 to 10:00;
- AM peak hour - 08:00 to 09:00;
- PM peak period - 16:00 to 19:00; and
- PM peak hour - 17:00 to 18:00.

6.4.81 The public transport (NR and LU) PM peak hour is, however, from 18:00 to 19:00.

### *Key construction transport issues*

6.4.82 Traffic and transport impacts will arise from the following construction activities:

- removal of excavated material;
- delivery of construction materials;
- utility works;
- working activity;
- disruption to rail services;
- diversions and road closures (both temporary and permanent); and

- construction activities and diversions from adjacent CFA.

6.4.83 Construction of HS2 in the Euston area will have temporary impacts which will include increased traffic demand, associated with material movement and delivery of construction materials, on a number of roads through the area, and traffic diversion resulting from the temporary closure of roads and/or footpaths requiring diversion routes for users. Utility works will also result in shuttle working on a number of roads.

6.4.84 Construction of the Proposed Scheme will also have an impact on public transport, due to a reduction in the available NR services and the potential requirement for temporary closure of some LU platforms at Euston station. Interchange performance at Euston station will, however, be maintained throughout construction.

6.4.85 The following sections consider in detail the impacts of construction activities.

### *Rail*

6.4.86 A number of interventions on the conventional rail network are proposed to allow the interface between high speed and conventional railways to be established. Two main types of intervention are proposed. Firstly, possessions to maintain safety while civil engineering works are taking place over, under or adjacent to the existing railway. Secondly, possessions to enable alterations to be made to the existing railway to accommodate the Proposed Scheme.

6.4.87 Railway works will be planned with Network Rail to ensure that disruption to passengers and freight is minimised as far as reasonably practicable. This includes measures such as:

- careful programming of works to coincide with possessions that are planned for the general maintenance of the existing railway;
- planning works so that they will be undertaken in short, overnight stages when passenger services will not be disrupted; and
- programming longer closures at weekends or bank holidays to minimise the number of passengers affected.

6.4.88 There will be a large number of interventions on the railway that will require possessions. These include a number of standard possessions which vary in duration depending on the scale and complexity of the works planned. These range from mid-week, night possessions, through to weekend possessions and bank holiday weekend possessions, and a longer 16 day blockade of platform 15. The great majority of the possessions will have a very limited impact on the operation of Euston and its rail services as they are relatively minor localised works. In addition, it is likely that many of the works will be combined to reduce the frequency of potential disruption.

- 6.4.89 Overall it is expected that there will be approximately 20 disruptive possessions which include weekend closures.
- 6.4.90 At the beginning of Euston station enabling works, which are not expected to exceed eight months during 2016, it will be necessary to cancel some NR services into Euston station. These are London Midland stopping services to and from Watford, which stop at Bushey and Harrow & Wealdstone. Three trains per day will be cancelled during this period, namely:
- two arrivals during the morning peak; and
  - one departure during the evening peak.
- 6.4.91 These cancellations will reduce NR passenger loadings at Euston station by approximately 600 passengers during the AM peak period. Passenger loadings on LU services will subsequently increase as follows:
- 320 passengers on Metropolitan and Jubilee Line services as far as Finchley Road (where the demand will split);
  - 30 passengers on the Bakerloo Line; and
  - 50 passengers on the Northern Line Edgware branch.
- 6.4.92 These increases in LU passenger loadings will not impact on capacity of these services.
- 6.4.93 The impacts on the NR and LU networks are shown in Figure 6-62 and Figure 6-63, respectively. Figure 6-62 shows the additional passenger loadings on NR services into Euston, while Figure 6-63 shows the increased LU passenger loadings from northwest London.

Figure 6-62: Impact of cancellation of 'Watford Starters' on rail network

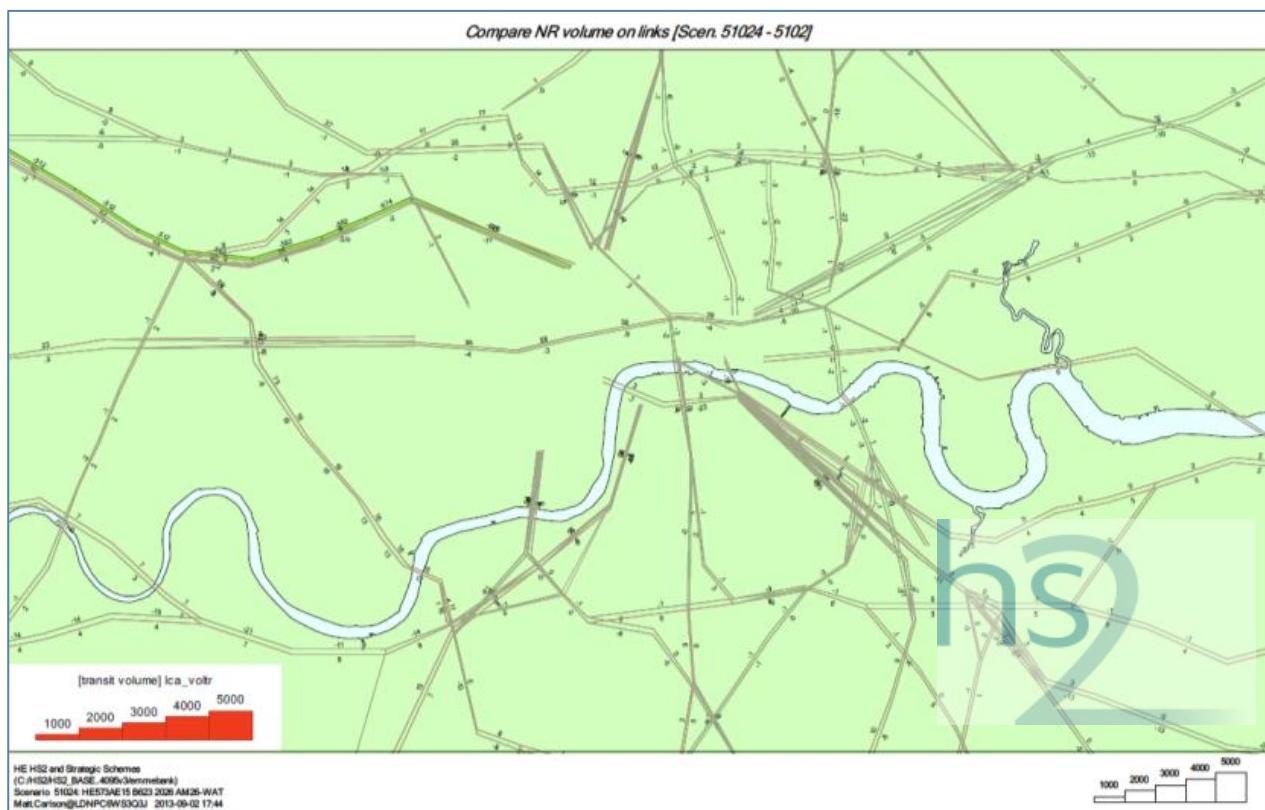
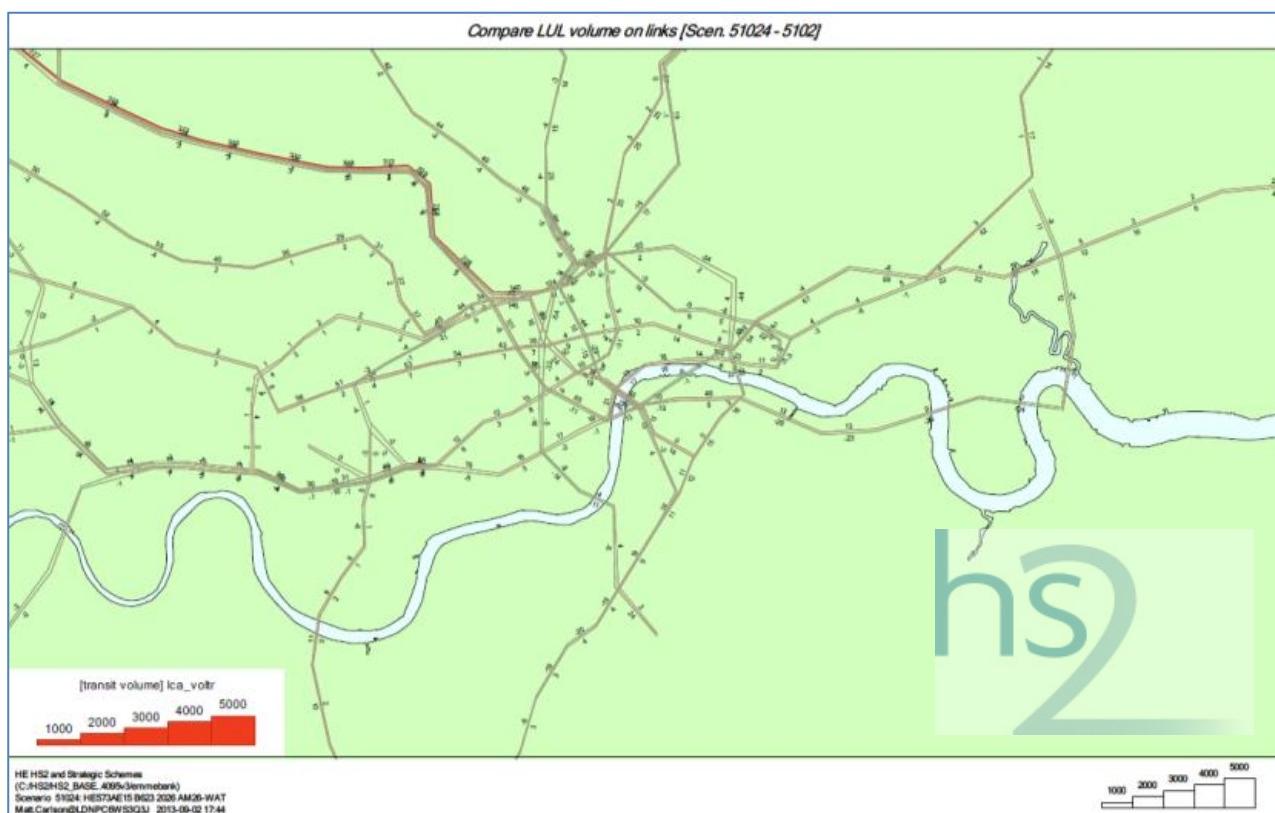


Figure 6-63: Impact of cancellation of 'Watford Starters' on LU network

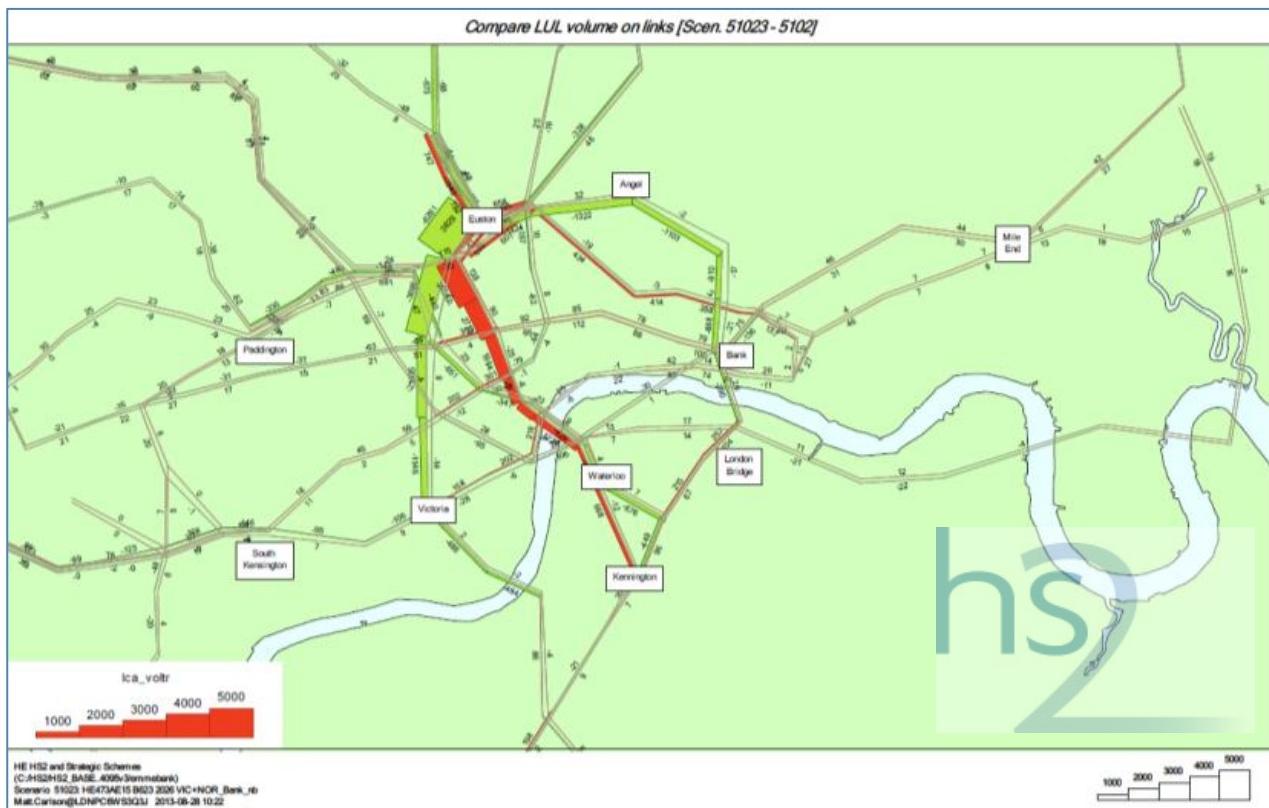


- 6.4.94 As shown in Figure 6-62 and Figure 6-63, the impact of the cancelled services on other NR and LU services is minimal.

### *Underground*

- 6.4.95 During the construction period, LU services via Euston LU station will continue to operate. Construction of the new escalators and lifts down to the underground will, however, require some closures of the underground platforms at Euston LU station.
- 6.4.96 On the Victoria Line and the Bank branch of the Northern Line, northbound platforms will need to close simultaneously during construction of the new escalator barrel, lowering of the ticket hall and construction of cross passage connections. Trains on these lines will not stop at Euston for a five-month period in early to mid 2022.
- 6.4.97 The southbound Northern Line (Bank branch) platform will need to close during construction of the new escalator barrel, lowering of the ticket hall and cross passage connections. Trains on this line will not stop at Euston for a three-month period from late 2021 and early 2022.
- 6.4.98 Partial platform closures on the southbound Victoria Line will be required to construct the new cross passage connection and a new lift. However, it is envisaged that trains will still be able to stop at Euston during these works.
- 6.4.99 On the Charing Cross branch of the Northern Line, simultaneous northbound and southbound platform closures will be required during construction of the lower lift shaft, lower lobby, cross passage and stair connection. Trains on this line will not stop at Euston for a three-month period in early 2023.
- 6.4.100 The impacts on the underground network of diversion due to through running for the three sets of platform closures are shown in Figure 6-64, Figure 6-65 and Figure 6-66.

Figure 6-64: Victoria Line and Northern Line Bank branch northbound platform closure

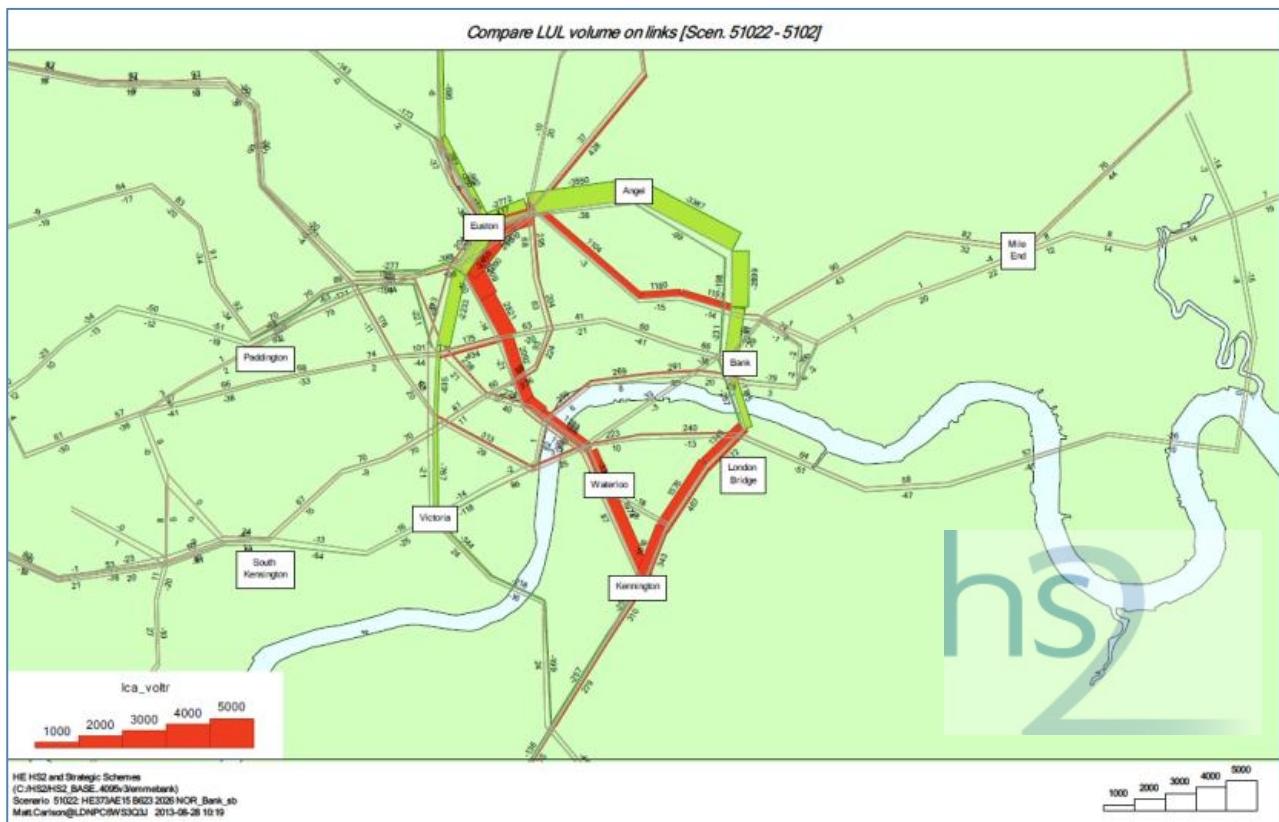


6.4.101 As shown in Figure 6-64, Figure 6-65 and Figure 6-66.

6.4.102 Figure 6-64, the key changes expected as a result of the closure of the Victoria Line and Northern Line Bank branch are:

- large volumes of walk trips between Warren Street and Euston station;
- Northern Line and Victoria Line interchange at Warren Street and King's Cross St. Pancras; and
- Large transfers of passengers from the Victoria Line and Northern Line Bank branch to the Northern Line Charing Cross branch.

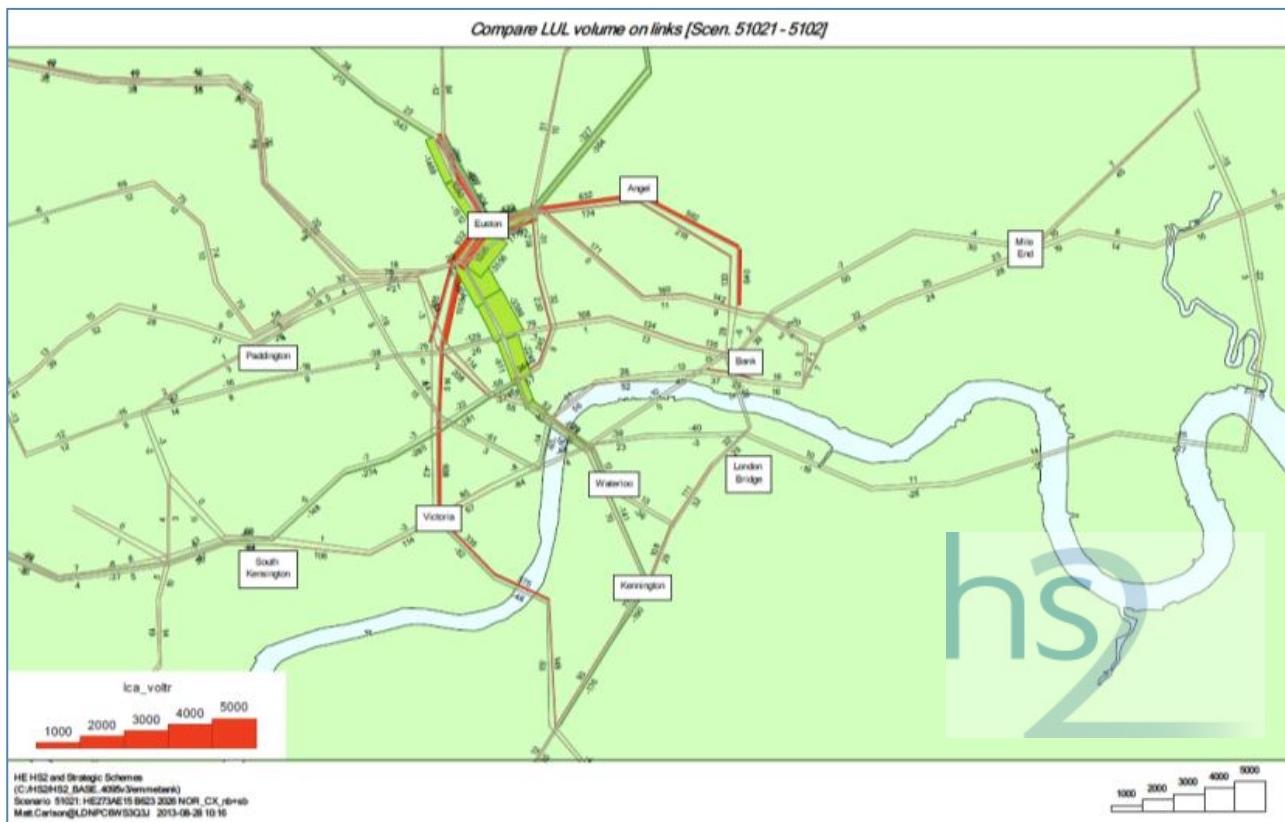
Figure 6-65: Northern Line Bank branch southbound platform closure



6.4.103 As shown in Figure 6-65, the key changes expected as a result of the Northern Line (Bank branch) southbound platform closure are:

- southbound demand to London Bridge using the Charing Cross branch of the Northern Line and 'u-turning' at Kennington. Opportunities to use the Jubilee Line from Waterloo to London Bridge will be limited due to crowding;
- southbound demand to London Bridge using the Metropolitan, Hammersmith & City or Circle Lines to Moorgate then interchanging to the Northern Line;
- Northern Line and Victoria Line interchange at King's Cross St. Pancras; and
- reduction in southbound Victoria Line demand due to the removal of key Northern Line (Bank branch) to Victoria Line interchange at Euston.

Figure 6-66: Northern Line Charing Cross branch northbound and southbound platform closure



6.4.104 As shown in Figure 6-66 the key changes expected as a result of the Northern Line (Charing Cross branch) northbound and southbound platform closures are:

- increase in passengers interchanging at Camden Town between the two Northern Line branches; and
- increase in passenger demand on the Bakerloo and Victoria Lines via Oxford Circus, the Piccadilly Line via King's Cross St. Pancras, and at Warren Street (for passengers walking to Euston station).

6.4.105 In broad terms, the platform closures will result in disruption to passengers during these periods with potential re-routing onto alternative LU services, interchange at alternative locations, increases in walk journeys from adjacent stations and increases in short distance bus journeys. Changed interchange patterns may also result in increased congestion at affected stations. The impact of end to end journey times is greatest for the Northern Line (Bank branch) southbound platform closure with an average journey time increase of around 3.5%, followed by the Victoria Line and Northern Line (Bank branch) northbound platform closure, with an average journey time increase of around 2.5%. The effect is lowest for the Northern Line (Charing Cross branch) northbound and southbound platform closures, with an average journey time increase of approximately 2.0%.

6.4.106 Table 6-49 shows the change in station activity associated with the platform closures. Key points to note are:

- station activity falls by the greatest absolute and percentage amounts at Euston station;
- the largest increases are at Kings Cross and Warren Street; and
- there are relatively large reductions at:
  - Tottenham Court Road (Northern Line Charing Cross non-stopping northbound and southbound), as passengers previously interchanging at Euston and then interchanging onto the Central Line at Tottenham Court Road find alternative routes including Central Line interchange at Oxford Circus);
  - Oxford Circus (southbound Northern Line non-stopping Bank branch), as the reductions in Victoria Line flows mean that interchange to the Central Line increases instead at Tottenham Court Road); and
  - Goodge Street (Victoria Line non-stopping northbound only and Northern Line Bank non-stopping northbound only), presumably as northbound passengers exit the Northern Line at this point and walk/use the bus to reach their destinations.

Table 6-49: Station access, egress and interchange with platform closures

Station	Absolute flow change			Percentage flow change		
	Northern Line Charing Cross non-stopping northbound and southbound	Southbound Northern Line non-stopping Bank branch	Victoria Line non stopping northbound only and Northern Line Bank branch non-stopping northbound only	Northern Line Charing Cross branch non- stopping northbound	Southbound Northern Line non-stopping Bank branch	Victoria Line non-stopping northbound only and Northern Line Bank non stopping northbound only
Aldgate	6	65	143	0%	0%	1%
Bank	458	-717	-421	1%	-1%	0%
Bond Street	379	45	-42	1%	0%	0%
Borough	77	293	7	1%	5%	0%
Camden Town	1,133	132	1,151	7%	1%	7%
Charing Cross	-246	-135	130	-1%	0%	0%
Elephant & Castle	7	77	-616	0%	0%	-3%
Embankment	-352	399	89	-1%	1%	0%
Euston (including Euston Square)	-3,609	-4,845	-8,401	-5%	-6%	-11%
Farringdon	106	-211	-110	0%	0%	0%
Fenchurch Street	4	-19	6	0%	0%	0%

Station	Absolute flow change			Percentage flow change		
	Northern Line Charing Cross non-stopping northbound and southbound	Southbound Northern Line non-stopping Bank branch	Victoria Line non stopping northbound only and Northern Line Bank branch	Northern Line Charing Cross branch non- stopping northbound and southbound	Southbound Northern Line non-stopping Bank branch	Victoria Line non-stopping northbound only and Northern Line Bank non stopping northbound only
Goodge Street	446	365	-874	2%	2%	-4%
Green Park	-17	130	218	0%	0%	0%
King's Cross	798	3,243	2,643	1%	6%	5%
Knightsbridge	-125	-31	6	-1%	0%	0%
Leicester Square	-1047	-284	-15	-4%	-1%	0%
Liverpool Street	143	-38	200	0%	0%	0%
London Bridge	130	-76	-187	0%	0%	0%
Mansion House	-242	47	42	-9%	2%	1%
Marylebone	-20	164	-46	0%	1%	0%
Monument	249	264	69	4%	4%	1%
Moorgate	-192	841	270	-1%	3%	1%
Old Street	122	-438	26	1%	-2%	0%
Oxford Circus	818	-1,504	393	1%	-2%	0%
Piccadilly Circus	-68	7	270	0%	0%	2%
Pimlico	-40	-183	-11	0%	-1%	0%
Russell Square	-41	84	185	-1%	1%	2%
South Kensington	-101	-97	64	0%	0%	0%
St James's Park	-54	201	10	0%	1%	0%
St Pancras	153	4	574	1%	0%	3%
Tottenham Court Road	-1,265	711	401	-3%	2%	1%
Victoria	285	-724	-532	0%	-1%	0%
Warren Street	1,244	67	3,296	8%	0%	21%
Waterloo	-527	92	757	0%	0%	1%

## *Bus*

- 6.4.107 The existing Euston bus station will remain fully operational during the construction phase with minimal disruption to bus services using the bus station. It is expected that the following changes to bus facilities will occur during the construction phase of the Proposed Scheme:
- on A501 Euston Road, 'Euston Station' westbound bus stop H will be relocated to the east, by approximately, 90m due to the construction of the sub-surface pedestrian route beneath A501 Euston Road;
  - on A501 Euston Road, 'Euston Square Station' westbound bus stop P will be relocated to the west, by approximately 30m, due to the construction of the sub-surface pedestrian route beneath A501 Euston Road;
  - on A4200 Eversholt Street, 'Aldenham Street' southbound bus stop S will be relocated to the south, by approximately 70m, so it can be served by bus routes which will start from the new Northern Bus Standing Area when the Proposed Scheme is in operation, and also to create space for a temporary coach parking bay during the construction phase;
  - on A400 Hampstead Road, 'Silverdale' northbound bus stop B will be relocated to the south by 100-200m and southbound bus stop W will be relocated to the north by 100-200m, both due to the construction of the A400 Hampstead Road overbridge; and
  - on A400 Hampstead Road, 'Robert Street' southbound bus stop will be relocated to the south, by approximately 100m, due to the construction of the new junction of A400 Hampstead Road with Robert Street and the entrance to the station taxi facility. The corresponding northbound bus stop will be unaffected.
- 6.4.108 It is expected that the following bus lanes will be temporarily removed during the construction phase:
- A501 Euston Road westbound and eastbound bus lanes due to the construction of the pedestrian sub-surface route beneath A501 Euston Road;
  - A4200 Eversholt Street southbound bus lane to provide a running lane for general traffic during utility works on A4200 Eversholt Street; and
  - A400 Hampstead Road (bridge) northbound and southbound bus lanes due to the construction of the new A400 Hampstead Road overbridge.
- 6.4.109 Due to the closure of the bus lanes, buses will use the general traffic lanes during the construction phase.
- 6.4.110 The timing of changes to the bus infrastructure around the station during the construction programme is reported in the construction phase access diagrams section.

- 6.4.111 No bus route diversions or reductions in frequency are expected due to works associated with Euston station construction.
- 6.4.112 There will be temporary bus route diversions on Adelaide Road and Chalk Farm Road, located within the Camden Town and HS1 Link (CFA2) area, which will affect bus routes 24, 31 and 168. These temporary diversions are required due to the construction of the HS2 link to HS1. Further details on these bus diversions can be found in CFA Transport Assessment Report 2 (Camden Town and HS1 Link area).
- 6.4.113 There will be street-works sites associated with utility works in various locations and phases of construction which will affect bus routes. This includes bus route C2 which is expected to be affected by shuttle working, using one vehicle lane, in the A4201 Parkway area.

### *Bus impacts*

#### **Bus stop relocation**

- 6.4.114 The relocation of bus stops will have an impact on bus users of the following services.
- 6.4.115 Bus stop H, on A501 Euston Road is currently used by approximately 1,150 passengers (total boarding and alighting) during the AM peak period and by approximately 1,140 passengers during the PM peak periods. While demand for bus routes at this bus stop may grow, the relocation of the bus stop by approximately 90m to the east, is not expected to result in a reduction in passenger demand at this bus stop, or an increase in passenger demand at other bus stops on the affected routes. This is due to the fact that the nearest bus stops are located at Euston Square Station, approximately 180m to the west, and opposite the British Library, some 360m to the east. The relocation of bus stop H will not have any impact on the operation of the bus routes using it, as it will still serve Euston station.
- 6.4.116 On A400 Hampstead Road, the southward relocation of the northbound bus stop B would affect approximately 430 bus users during the AM peak period and some 470 bus users during the PM peak period, based on existing demand. The demand for this bus stop is likely to be reduced due to the demolition of a number of residential dwellings in the vicinity of the bus stop. The relocation of the bus stop is not anticipated to impact the capacity of this, or adjacent bus stops, which are located just north of William Road, approximately 390m to the south, and at Mornington Crescent LU station, approximately 360m to the north.

- 6.4.117 A501 Euston Road westbound bus stop P at Euston Square station, is currently used by approximately 460 passengers during the AM peak period and by approximately 200 passengers during the PM peak period. Passenger demand at this bus stop may grow in the future, however, moving this bus stop 30m to the west is not expected to impact on passenger demand at this bus stop, or result in an increase in passenger demand at other bus stops on the relevant routes.
- 6.4.118 A4200 Eversholt Street southbound bus stop S, at Aldenham Street, is currently used by approximately 250 passengers during the AM peak period and some 180 passengers during the PM peak period. While demand for bus routes at this stop may grow, the relocation of the bus stop by 70m to the south is not expected to result in a reduction in passenger demand at this bus stop, or an increase in passenger demand at other bus stops on relevant routes.
- 6.4.119 The northward relocation of the southbound bus stop B, on A400 Hampstead Road, would affect approximately 230 passengers during the AM peak period and approximately 270 passengers during the PM peak period. As with bus stop B, demand at bus stop W is likely to reduce due to the reduction in the residential demand in the area. Therefore, the relocation of the bus stop is unlikely to impact this or other bus stops. The nearest bus stops on the affected routes are located on A400 Hampstead Road just south of Cardington Street some 220m to the south, and at Mornington Crescent station, approximately 360m to the north.
- 6.4.120 The southbound bus stop on A400 Hampstead Road at Robert Street, which will be relocated approximately 100m to the south, is currently used by approximately 250 passengers during the AM peak period and approximately 370 during the PM peak period. The relocation of the bus stop will not substantially affect these users and is not expected to result in an increase in bus boarding and alighting at other southbound bus stops on A400 Hampstead Road.

### **Bus lane removal**

- 6.4.121 Table 6-50 shows the bus routes affected by the temporary removal of bus lanes on A501 Euston Road, A4200 Eversholt Street and A400 Hampstead Road. The number of buses (based on the frequency) affected in each direction is also provided.

Table 6-50: Bus routes affected by bus lane removals

Street/road	Bus routes	Number of buses per direction
A501 Euston Road	10, 18, 30, 73, 205, 390	71.5
A4200 Eversholt Street	168, 253	21
A400 Hampstead Road	24, 27, 29, 88, 134	50

## **Bus journey times**

- 6.4.122 The impact of temporarily removing the bus lanes on A501 Euston Road, A4200 Eversholt Street and A400 Hampstead Road, as well as the impact of increased HGV movements, diverted traffic flows and the impact of the highway interventions has been modelled in CLoHAM, for the three construction scenarios. The maximum and average changes (in minutes) to the end to end journey times of the bus routes operating in the Euston area are shown in Table 6-51, for the AM peak hour and Table 6-52, for the PM peak hour. The impact of duration is directly related to the duration of the construction interventions of the relevant scenario.

Table 6-51: Bus journey time changes (in minutes) - AM peak hour (08:00-09:00)

Bus route	From/to	Direction	2021 baseline	Scenario 1	Scenario 2	Scenario 3	Actual change 2021 baseline to:			% change 2021 baseline to:		
							Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
10	King's Cross to Hammersmith	Eastbound and westbound	91.1	94.20	94.30	93.80	3.1	3.2	2.7	3.4%	3.5%	3.0%
30	Hackney Wick to Oxford Street	Eastbound	48.3	49.90	51.00	50.80	1.6	2.7	2.5	3.3%	1.6%	5.2%
		Westbound	51	51.40	51.80	51.50	0.4	0.8	0.5	0.8%	5.6%	1.0%
73	Victoria to Stoke Newington	Eastbound	40.5	42.40	42.80	42.20	1.9	2.3	1.7	4.7%	1.9%	4.2%
		Westbound	41.3	42.30	42.10	41.60	1	0.8	0.3	2.4%	5.7%	0.7%
205	Paddington to Bow	Eastbound	51.8	53.20	54.20	54.00	1.4	2.4	2.2	2.7%	0.6%	4.2%
		Westbound	54	54.30	54.30	54.00	0.3	0.3	0	0.6%	4.6%	0.0%
390	Archway to Notting Hill Gate	Eastbound and westbound	81.8	84.80	85.10	84.40	3	3.3	2.6	3.7%	4.0%	3.2%
59	Streatham Hill to King's Cross	Eastbound	34.9	37.10	37.70	37.40	2.2	2.8	2.5	6.3%	7.4%	7.2%
		Southbound	34	35.90	36.50	36.20	1.9	2.5	2.2	5.6%	8.0%	6.5%
91	Trafalgar Square to Hornsey	Eastbound	35.5	35.90	36.60	35.70	0.4	1.1	0.2	6.2%	3.1%	7.0%
		Southbound	35.6	37.80	38.60	38.10	2.2	3	2.5	1.1%	8.4%	0.6%
18	Euston to Sudbury	Eastbound	37.9	37.50	37.40	37.50	-0.4	-0.5	-0.4	-1.4%	-0.2%	-0.5%
		Westbound	43.4	42.80	43.30	43.20	-0.6	-0.1	-0.2	-1.1%	-1.3%	-1.1%
476	Euston to Northumberland Park	Eastbound and westbound	71.5	74.10	74.60	74.00	2.6	3.1	2.5	3.6%	4.3%	3.5%
68	Euston to West Norwood	Northbound and southbound	82.8	84.70	86.80	85.00	1.9	4	2.2	2.3%	4.8%	2.7%

Bus route	From/to	Direction	2021 baseline	Scenario 1	Scenario 2	Scenario 3	Actual change 2021 baseline to:			% change 2021 baseline to:		
							Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
253	Euston to Hackney	Northbound and southbound	66.7	69.60	69.70	69.40	2.9	3	2.7	4.3%	4.5%	4.0%
168	Hampstead Heath to Old Kent Road	Northbound and southbound	83.5	86.40	85.60	85.90	2.9	2.1	2.4	3.5%	2.5%	2.9%
24	Hampstead Heath to Grosvenor Road	Northbound	39.6	41.00	41.00	40.70	1.4	1.4	1.1	3.5%	3.5%	2.8%
		Southbound	40.1	41.70	42.60	41.40	1.6	2.5	1.3	4.0%	6.2%	3.2%
27	Chalk Farm to Chiswick	Northbound and southbound	107.9	110.50	104.90	111.00	2.6	-3	3.1	2.4%	-2.8%	2.9%
29	Trafalgar Square to Wood Green	Northbound and southbound	76.4	78.70	79.00	78.40	2.3	2.6	2	3.0%	3.4%	2.6%
88	Camden Town to Clapham Common	Northbound	48	46.90	46.80	46.00	-1.1	-1.2	-2	-2.3%	-2.5%	-4.2%
		Southbound	42.6	44.40	44.10	44.10	1.8	1.5	1.5	4.2%	3.5%	3.5%
134	North Finchley to Tottenham Court Road	Northbound	28.5	29.60	30.30	29.20	1.1	1.8	0.7	3.9%	6.3%	2.5%
		Southbound	34.2	35.50	35.40	35.40	1.3	1.2	1.2	3.8%	3.5%	3.5%
31	Bayham Street to White City Bus Station	Westbound	41.7	42.30	44.50	42.20	0.6	6.5	0.5	1.4%	6.7%	1.2%
		Eastbound	38	38.50	44.60	38.2	0.5	6.6	0.2	1.3%	17.4%	0.5%
C2	Parliament Hill Fields to Victoria	Northbound and southbound	44.1	48.40	50.70	45.1	4.3	6.6	1	9.8%	15.0%	2.3%

Table 6-52: Bus journey time changes (in minutes) - PM peak hour (17:00-18:00)

Bus route	From/to	Direction	2021 baseline	Scenario 1	Scenario 2	Scenario 3	Actual change 2021 baseline to:			% change 2021 baseline to:		
							Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
10	King's Cross to Hammersmith	Eastbound and westbound	132.1	132.70	132.90	132.30	0.6	0.8	0.2	-0.5%	0.6%	0.2%
30	Hackney Wick to Oxford Street	Eastbound	62	63.20	63.20	63.10	1.2	1.2	1.1	1.9%	1.9%	1.8%
		Westbound	49.4	49.30	49.70	49.10	-0.1	0.3	-0.3	-0.2%	0.6%	-0.6%
73	Victoria to Stoke Newington	Eastbound	56.4	57.60	57.40	57.80	1.2	1	1.4	2.1%	1.8%	2.5%
		Westbound	71.2	71.20	71.20	70.70	0	0	-0.5	0.0%	0.0%	-0.7%
205	Paddington to Bow	Eastbound	67.4	68.90	68.60	68.50	1.5	1.2	1.1	2.2%	1.8%	1.6%
		Westbound	55.3	55.50	55.50	55.30	0.2	0.2	0	0.4%	0.4%	0.0%
390	Archway to Notting Hill Gate	Eastbound and westbound	117.6	118.40	118.50	118.30	0.8	0.9	0.7	0.7%	0.8%	0.6%
59	Streatham Hill to King's Cross	Eastbound	41	42.00	42.30	41.90	1	1.3	0.9	2.4%	3.2%	2.2%
		Southbound	39.2	39.80	40.00	40.00	0.6	0.8	0.8	1.5%	2.0%	2.0%
91	Trafalgar Square to Hornsey	Eastbound	42.7	43.80	43.90	43.80	1.1	1.2	1.1	2.6%	2.8%	2.6%
		Southbound	32.4	32.80	33.20	32.90	0.4	0.8	0.5	1.2%	2.5%	1.5%
18	Euston to Sudbury	Eastbound	33.2	32.70	33.00	32.60	-0.5	-0.2	-0.6	0.5%	1.4%	0.0%
		Westbound	36.6	36.80	37.10	36.60	0.2	0.5	0	-1.5%	-0.6%	-1.8%
476	Euston to Northumberland Park	Eastbound and westbound	78.2	79.20	79.20	79.20	1	1	1	1.3%	1.3%	1.3%
68	Euston to West	Northbound and	88.1	89.00	89.60	89.30	0.9	1.5	1.2	1.0%	1.7%	1.4%

Bus route	From/to	Direction	2021 baseline	Scenario 1	Scenario 2	Scenario 3	Actual change 2021 baseline to:			% change 2021 baseline to:		
							Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
	Norwood	southbound										
253	Euston to Hackney	Northbound and southbound	64	66.20	65.70	66.10	2.2	1.7	2.1	3.4%	2.7%	3.3%
168	Hampstead Heath to Old Kent Road	Northbound and southbound	78.2	80.40	80.70	80.20	2.2	2.5	2	2.8%	3.2%	2.6%
24	Hampstead Heath to Grosvenor Road	Northbound	42.5	44.20	44.80	43.70	1.7	2.3	1.2	4.0%	5.4%	2.8%
		Southbound	68.7	69.50	69.80	68.90	0.8	1.1	0.2	1.2%	1.6%	0.3%
27	Chalk Farm to Chiswick	Northbound and southbound	119.1	122.00	118.10	121.70	2.9	-1	2.6	2.4%	-0.8%	2.2%
29	Trafalgar Square to Wood Green	Northbound and southbound	107.5	109.60	109.90	108.70	2.1	2.4	1.2	2.0%	2.2%	1.1%
88	Camden Town to Clapham Common	Northbound	52	54.90	55.20	54.80	2.9	3.2	2.8	5.6%	6.2%	5.4%
		Southbound	47.1	48.80	48.50	48.60	1.7	1.4	1.5	3.6%	3.0%	3.2%
134	North Finchley to Tottenham Court Road	Northbound	35.1	36.50	37.00	36.20	1.4	1.9	1.1	4.0%	5.4%	3.1%
		Southbound	60.1	60.60	60.60	60.20	0.5	0.5	0.1	0.8%	0.8%	0.2%
31	Bayham Street to White City Bus Station	Westbound	39.7	39.7	43.40	39.80	0	3.7	0.1	0%	9.3%	0.3%
		Eastbound	38.3	38.80	44.90	38.3	0.5	6.6	0	1.3%	17.2%	0%
C2	Parliament Hill Fields to Victoria	Northbound and southbound	46.2	50.70	55.90	47.50	4.5	9.7	1.3	9.7%	21.0%	2.8%

- 6.4.124 The bus routes operating along A501 Euston Road experience an increase in end to end journey times as a result of increased traffic flow associated with HGV movements due to construction of the Proposed Scheme as well as the removal of the eastbound and westbound bus lanes due to utility works on A501 Euston Road. The increases in journey times in Scenario 2 are generally slightly higher than the other two scenarios due to the utility works that will be undertaken on Euston Road during this stage of construction.
- 6.4.125 Bus routes operating along A4200 Eversholt Street experience an increase in end to end journey times due to the additional HGV traffic flow to the Royal Mail construction compound and the additional taxi flows to the temporary taxi facility on A4200 Eversholt Street. The utility works on Eversholt Street during Scenario 1 also contribute to the increases in journey times during this scenario.
- 6.4.126 On A400 Hampstead Road, the end to end bus journey time increases occur due to the additional traffic flows associated with the construction compounds at the National Temperance Hospital, A400 Hampstead Road overbridge and Regent's Park Estate. The construction works on A400 Hampstead Road overbridge and the consequential reduction to one lane in each direction also contributes to an increase in end to end journey times for Scenarios 1 and 2.
- 6.4.127 This modelling has shown that the maximum increase in the end to end journey time experience on the affected bus routes is 8.4% on A501 Euston Road (eastbound) during the AM peak hour and 6.2% on A400 Hampstead Road (northbound) during the PM peak hour, both for Scenario 2.
- 6.4.128 Route C2 which has frequency of 7.5 buses per hour per direction is impacted by the temporary traffic management measures at the A4201 Parkway junction and the short term closures on Adelaide Road (CFA3) and Chalk Farm Road (CFA2). As a result, delays are anticipated to be incurred during the AM peak period, with an increase in the end to end journey time of 15%, during Scenario 2, and during the PM peak period, with an increase in the end to end journey time of 21%.

### **Bus route diversions**

- 6.4.129 The temporary bus route diversions, as a result of the short term closures on Adelaide Road (CFA3) and Chalk Farm Road (CFA2) associated with the HS2 to HS1 Link, will impact on the distances travelled on three bus routes: route 24 (northbound), route 31 (westbound and eastbound) and route 31 (eastbound). The impacts of the diversions are reported in Table 6-51 and Table 6-52.

### *Coach*

- 6.4.130 There is an existing parking bay for one coach on Cardington Street, which accommodates charter coaches to Euston station and the Hotel Ibis. This coach parking bay will be removed due to the westward expansion of Euston station. A replacement coach parking bay will be provided on A4200 Eversholt Street, just south of Barnby Street. The replacement coach facility will be provided prior to the removal of the coach parking bay on Eversholt Street.
- 6.4.131 The coach set-down and pick-up facility for those with mobility impairments, located within the basement service area of Euston station, will not be accessible during construction of the Proposed Scheme. Coaches for mobility impaired people will be able to set-down and pick-up passengers on A4200 Eversholt Street, where Network Rail staff assistance can be called.
- 6.4.132 Rail replacement buses/coaches, which currently enter Euston station by ramp from Barnby Street, will not be able to do so during the construction phase of the Proposed Scheme. Rail replacement coaches may be accommodated on A4200 Eversholt Street or in Euston bus station during construction, subject to agreement with NR, and TfL London Buses.
- 6.4.133 The coach parking bay on Cardington Street can experience periods of intense activity associated with the Ibis Hotel and Thistle Hotel Euston. However, with the demolition of the Ibis Hotel on Cardington Street and, hence, the removal of some of the demand for coach parking, it is not anticipated that the re-location of the coach bay to A4200 Eversholt Street will impact the coaches in the area.

### *Public transport interchanges*

- 6.4.134 Euston station currently experiences a range of congestion issues and growth, and planned service enhancements (particularly the completion of on-going upgrade works to the Northern line) are expected to result in further congestion increases. These issues have been examined as part of the construction planning process.
- 6.4.135 The main capacity constraint, in the AM peak hour, is currently identified as within the LU station, where access to the southbound Victoria Line and Northern Line (Bank branch) is very close to the theoretical capacity of the system. Analysis of the PM peak period identifies passenger accumulation capacity in the rail concourse as being the area of weakest performance. This was previously identified in NR's Network Route Utilisation Strategy (RUS) for stations. The RUS also identifies that the operation of this area requires management and control by station staff. These capacity issues are identified as being a result of the constraints of the existing infrastructure a trend that will be further exacerbated by the forecast growth during the construction period.

- 6.4.136 The impact of the proposed construction strategy has been reviewed in terms of the level of disruption experienced, measured in terms of changes in walking distances, and any impacts on station capacity/congestion.

### **Disruption during construction**

- 6.4.137 Passenger routes within Euston station, between platforms, concourse and surface connections and interchange will be affected throughout the construction period. Review of the proposed phasing indicates that the vast majority of revised interchange routes and surface connections can be maintained with only minor impacts (increase in travel distance of less than 200m). The number of passengers impacted will be high over a period in excess of four months.
- 6.4.138 One period has been identified where an increase in the travel distance of 200-400m will be experienced. This occurs during 2024, when a substantial proportion of passengers entering or exiting the underground station experience an increased walking distance of 250m. This affects a large number of travellers for four months.

### **Euston station capacity**

- 6.4.139 The currently proposed phasing has been developed to support operation of Euston station throughout construction. At certain stages this has identified a requirement for a number of temporary facilities to increase passenger capacity on interchange routes which experience increased usage. These include the early widening of the ramp to platforms 1 to 3 and provision of an additional stair, adjacent to the existing escalators, between the LU and NR stations. Expected increases in passenger volumes also support the planned provision of an external overflow area, of a size comparable to the existing plaza, to support operation of the existing concourse, until the new station concourse comes into use.
- 6.4.140 While changes to station access and interchange to the underground continue for the remainder of the construction programme, the introduction of the new concourse and improved access to the conventional platforms, in 2022, provides a number of early station capacity benefits.

### **Euston Underground station capacity**

- 6.4.141 Apart from the platform closures identified, the current phasing proposals have limited impact on the Euston LU station capacity. Existing congestion issues will however persist, and forecast growth is expected to result in increased congestion within the LU station during the construction period.

6.4.142 Initial impacts of the construction phasing relate to changes in the interchange patterns between the LU and NR stations, where an additional temporary stair is proposed to increase capacity on the main concourse to LU concourse routes. In the period 2022-2024, there will be a number of changes to the routeing between the two stations. However, the required access capacity to maintain full operation of the Underground station is provided at each stage. Key elements of the final station layout are brought into use from 2024, providing improved operations.

### *Pedestrians*

6.4.143 Certain footways will need to be closed with temporary alternative routes in place to enable construction works to occur. Therefore, during the different stages of the construction programme, routes for pedestrians will be managed to maintain adequate routes.

6.4.144 To assess changes to the pedestrian network in the vicinity of Euston station, during the construction programme, an assessment has been undertaken to calculate the required pedestrian walkway and footway widths to accommodate the pedestrian flows from the station.

6.4.145 This has been assessed, on a case by case basis, for routes experiencing a substantial degree of change (whether in terms of layout or expected usage), and target size requirements have been developed with NR and LUL, on the basis of the following assumptions:

- the 2012 Euston Area matrices;
- an initial uplift of 8% to match 2012 DfT Passengers in Excess of Capacity (PIXC) count data; and
- further demand growth of 3% per annum.

6.4.146 Timings and durations are based on the diagrams presented in Figure 6-46 to Figure 6-61.

6.4.147 The assessment has been rationalised, such that, where a temporary route is in place for a number of years, performance is reviewed for the busiest year condition.

6.4.148 At this stage the routes identified are indicative and subject to further agreement with LBC, TfL and NR.

6.4.149 The assessment assumes that a Level of Service (LoS) C is achieved, where LoS A provides the most comfortable conditions and LoS F the least. Table 6-53 shows the requirements of the LoS scale<sup>7</sup>.

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<sup>7</sup> Fruin. 1971. Pedestrian Planning and Design. Elevator World, Inc. Mobile, Alabama, USA.

Table 6-53: LOS scale factors

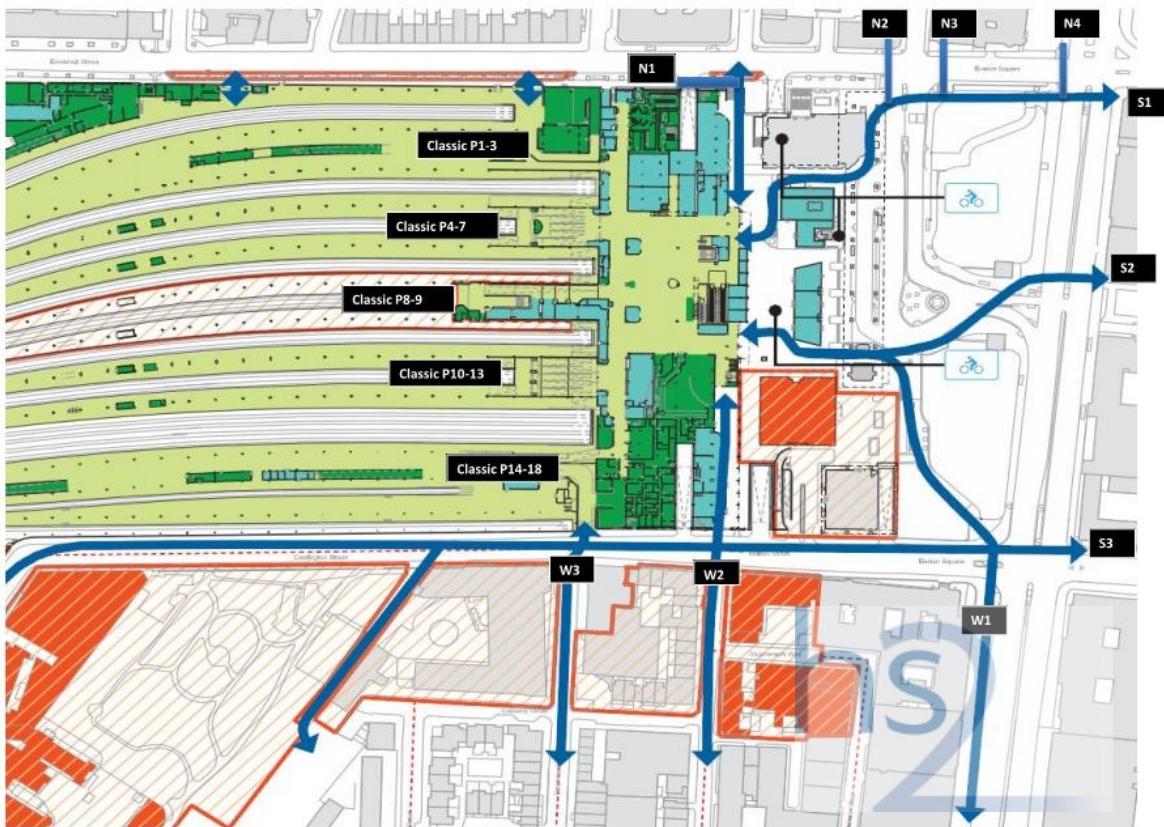
<b>LOS</b>	<b>Walkway (m<sup>2</sup>/ped)</b>	<b>Walkway capacity (ped/metre/min)</b>
A	>3.25	<23
B	3.25-2.30	23-33
C	2.30-1.39	33-49 (two-way target 40 ppm)
D	1.39-0.93	49-66 (one-way target 50 ppm)
E	0.93-0.46	66-82
F	<0.46	NA

- 6.4.150 The provision of appropriately sized pedestrian routes to and within Euston Station will be continually reviewed throughout the construction period. However, it is intended that all routes to publicly accessible areas of the station, and on the approaches to the station, will be sized to a minimum width of 3.0m.
- 6.4.151 The focus of assessment is on pedestrian routes which experience substantial changes in layout or usage; these are highlighted in the phase by phase commentary later in this section and, across the programme, include all the key routes and footways into the station.
- 6.4.152 The following changes have been identified and assessed:
- closure of the Euston Square Gardens eastern route;
  - diversion of the Euston Square Gardens western route;
  - temporary western access route across the HS2 worksite;
  - bus station access route following plaza closure;
  - temporary eastern access route to A4200 Eversholt Street;
  - revised access routes following opening of HS2 concourse; and
  - external access route to LU.
- 6.4.153 The sizing of these will be based on the requirements for the following movements. These are shown below for the 2026 situation, which represents the busiest-case situation. This shows that, except for the station entrances themselves, where multiple routes converge, the required dimensions are governed by the proposed minimum route width target of 3m.
- 6.4.154 The results of the assessment are provided in Table 6-54. The locations of each of the platforms and street entrances can be seen in Figure 6-67. Dimensions at intermediate locations are also reviewed.

Table 6-54: Pedestrian demand, required and target walkway widths during construction, 2021

Walkway location	AM peak hour two-way flow per minute	PM peak hour two-way flow per minute	Required width (m)	Target width (m)
Street entrance/exit W3	34	18	2.0m	3.0m
Street entrance/exit W2	20	22	2.0m	3.0m
Link from concourse to western circulation area	109	122	4.0m	4.0m
Street entrance/exit W1 (Euston Square)	74	77	4.0m	4.0m
Link from west entrance/exit to bus station	8	11	1.0m	3.0m
Link to bus station	16	21	1.0m	3.0m
LU access route	320	342	10.0m	10.0m
Link from concourse to eastern circulation area	95	135	4.0m	4.0m
Street entrance/exit N1	23	34	2.0m	3.0m
Link between entrance N1 and N2	72	100	4.0m	4.0m
Street entrance/exit N2	14	19	2.0m	3.0m
Link between entrance N2 and N3	59	81	3.0m	3.0m
Street entrance/exit N3	13	12	1.0m	3.0m
Link between entrance N3 and N4	46	69	3.0m	3.0m
Street entrance/exit N4	27	41	2.0m	3.0m
Street entrance/exit S1	19	28	2.0m	3.0m
Street entrance/exit S2	10	14	1.0m	3.0m
Street entrance/exit S3	15	23	2.0m	3.0m

Figure 6-67: Station access and egress points



## Cycling

### Cycle routes

6.4.156 Cyclists will be impacted by bus lane closures on the following routes:

- A501 Euston Road - temporary closure of the westbound and eastbound bus lanes due to construction of the pedestrian sub-surface route beneath A501 Euston Road. Cyclists will use the general traffic lanes;
- A4200 Eversholt Street - temporary closure of the southbound bus lane to provide the extra width required for a temporary taxi facility adjacent to Euston station, on the western side of A4200 Eversholt Street. Cyclists will use the general traffic lane; and
- A400 Hampstead Road - temporary closure of the northbound and southbound bus lanes due to the construction of the new A400 Hampstead Road overbridge. Cyclists may use the general traffic lanes or, alternatively, use an off-carriageway route provided using a temporary utility bridge. This route would connect to the southeast side of A400 Hampstead Road overbridge, run via Ampthill Square Estate and connect to the south side of Harrington Square. This would be a two-way route and cyclists could use pedestrian crossings at each end to cross the carriageway.

6.4.157 Cyclists will be affected by a number of road closures during the construction programme:

- Cardington Street will be closed permanently due to the construction of Euston station. Cobourg Street and the eastern ends of Starcross Street, Drummond Street, Euston Street and Stephenson Way will be temporarily closed. As described earlier, a pedestrian link from the west side of Euston station to Euston Street or Stephenson Way will be available throughout the construction phase, although cyclists may need to dismount if using this link;
- Melton Street will be temporarily closed to cyclists due to the construction of the pedestrian sub-surface route beneath A501 Euston Road. A pedestrian link from the southwest corner of Euston station to A501 Euston Road will be available throughout the construction phase, although cyclists may need to dismount if using this link;
- the north end of Gordon Street will be temporarily closed to cyclists due to the construction of the pedestrian sub-surface route beneath A501 Euston Road;
- Mornington Street overbridge will be closed with a temporary pedestrian and utilities bridge provided. Cyclists using this bridge will be required to dismount before doing so. Park Village East will temporarily become a pedestrian only route, requiring cyclists to dismount. This is due to construction of the railway line on the approach to Euston station. Taking a diversionary route via A4201 Albany Street and Robert Street would add less than 100m to cyclist journeys;
- Granby Terrace will temporarily close due to construction of the railway line on the approach to Euston station. A temporary diversion cycle route will be available via Robert Street, adding 730m to the journeys of cyclists travelling eastbound. However, it is expected that the number of cyclists using this route would be low if Park Village East was simultaneously closed; and
- the construction works affecting Cardington Street, Melton Street and the north end of Gordon Street will result in the partial loss of LCN+ (unofficial) route 6a from Mornington Crescent to Tavistock Place or Gordon Square. Using signs, cyclists will be directed via an alternative north to south route during the construction phase. One possible diversion route would be via A400 Hampstead Road and A400 Tottenham Court Road, or Gower Street and Byng Place, which will add approximately 400m to cyclist journeys. A shorter diversion route would be available via A400 Hampstead Road, the A501 Euston Road cycle track and Gower Place, which would add approximately 250m to cyclist journeys. However, this would require two-way cycling past the Euston Square station entrance and on Gower Place.

6.4.158 Temporary alternative cycle routes will be further developed in consultation with TfL and LBC through the detailed construction planning stages.

## Cycle parking

- 6.4.159 Any cycle parking affected by construction activities will be relocated during the construction phase. This includes the small number of isolated on-street cycle parking spaces. The total number of existing cycle parking spaces will be maintained. Euston station's cycle parking provision will continue to be secure and sheltered, for example using canopies.
- 6.4.160 There are three cycle parking areas at the front of the existing Euston station providing 234 cycle parking spaces through a mixture of Sheffield stand 'toast racks' and newer, covered, two-tier cycle racks. These are described as follows:
- 60 cycle parking spaces provided using Sheffield stand 'toast racks' on the west side of Euston station piazza near the ticket office, Sainsbury's supermarket and 40 Melton Street. This will be the first cycle parking area to be affected by construction work, and will be relocated to a temporary location in Euston Square Gardens on the west side of the west gatehouse building, which is less than 100m from its original location. It will be accessible from the station and from A501 Euston Road;
  - 124 cycle parking spaces provided using Josta two tier racks (88 spaces) and Sheffield stand 'toast racks' (36 spaces) near the centre of Euston station piazza in an 'L' shape around an existing retail facility. This will be the second cycle parking area to be affected by construction work, and will be relocated to a permanent location south-west of the station near the south end of Cobourg Street, which is less than 100m from its original location. It will be accessible from the station, from A501 Euston Road and from roads west of the station; and
  - 50 cycle parking spaces provided using Josta, two tier racks on the east side of Euston station piazza near One Eversholt Street. This will be the third cycle parking location to be affected by construction work, and will be relocated to a permanent location on A420 Eversholt Street near One Eversholt Street, which is less than 100m from its original location. It will be accessible from the station and from A4200 Eversholt Street.
- 6.4.161 During the phased transition from existing cycle parking, through temporary, to new cycle parking there will be a phased increase in overall cycle parking provision if required.

## Cycle hire

- 6.4.162 It is expected that the following Barclays Cycle Hire docking stations will be relocated:
- Drummond Street provides 28 docking points and will be relocated due to the westward expansion of Euston station. The docking station is likely to be relocated westward along Drummond Street or to a nearby street;

- A400 Hampstead Road (Cartmel) provides 16 docking points and will be relocated due to the construction of the new A400 Hampstead Road overbridge. The docking station is likely to be relocated westward onto Varndell Street or to a nearby street; and
- A501 Euston Road provides 24 docking points and will be relocated due to the construction of the pedestrian subway beneath A501 Euston Road. The docking station is likely to be relocated westward, close to the A501 Euston Road junction with North Gower Street.

- 6.4.163 Replacement docking stations will be provided prior to their closure. The existing total number of docking points will continue to be provided during the construction phase.
- 6.4.164 Additionally, it is expected that a small number of docking stations, including Doric Way and Endsleigh Gardens, will be temporarily closed for up to four weeks due to utility works.

### Cycling impacts

- 6.4.165 The disruption to cycle routes, as a result of road closures will not have a substantial impact on journey times and affect a low number of cyclists.
- 6.4.166 The closure of Cardington Street, which is currently used by 106 cyclists in the AM peak hour and 52 cyclists during the PM peak hour, will increase cyclist journey by up to two minutes, assuming that the diverted route will be via A400 Tottenham Court Road and A400 Hampstead Road.
- 6.4.167 Granby Terrace is currently used by 59 cyclists during the AM peak hour and 22 cyclists 22 cyclists during the PM peak hour. While the closure of Granby Terrace will only affect a small number of cyclists, journey times will be increased by between two and three minutes.
- 6.4.168 The total number of existing cycle parking spaces and cycle hire docking points will continue to be provided during the construction phase.
- 6.4.169 The impact on cyclists of the increased number of HGVs in the area has also been considered. The risk and severity of HGV/cyclist collisions will be mitigated by a range of safety measures. Further details on these mitigation measures can be found in the Code of Construction Practice (CoCP) (see Volume 5: Appendix CT-003-000/1).

## *Parking and loading*

### **On-street parking**

- 6.4.170 To accommodate the construction works at Euston station a number of road closures and associated parking suspensions will be necessary. There will be a temporary loss of approximately 123 on-street parking spaces as a result of the construction of the Proposed Scheme, HGV routing and utility works, although these are not necessarily concurrent. Included in this total are residential permit holders bays (49), permit holders (22), pay and display (51), loading bays (1), blue badge parking (0).
- 6.4.171 Temporary and permanent parking suspensions required due to construction works will result in the loss or relocation of on-street parking at the locations shown in Table 6-55. Only those roads where parking bays will need to be temporarily suspended for more than 4 weeks are listed. It is likely that parking will be suspended along other roads. However, these are not listed as the suspensions are likely to be necessary for less than four weeks.
- 6.4.172 Permanent parking suspensions, which are assessed in the operational chapter, will occur on Melton Street, Cardington Street and Cobourg Street.
- 6.4.173 The number of parking spaces suspended at each location is an approximation based upon site visit observations, as each vehicular space may not be individually marked.

Table 6-55: On-street parking loss due to temporary or permanent suspensions

Location	Permit holder	Resident permit holder	Pay & display	Disabled	Motorcycle	Car club	Taxi	Loading
Melton Street						4		
Cardington Street			5 <sup>1</sup>			1	4	
Euston Street			4					
Drummond Street	1	3	6		8			1
Cobourg Street		12						
Gordon Street								2
Mornington Crescent			3					
Robert Street		1	22					
Stanhope Street		18	5	1				
Mackworth Street		16						
Varndell Street		9	3					
Harrington Street		10						
Granby Terrace	12	6	7					

Location	Permit holder	Resident permit holder	Pay & display	Disabled	Motorcycle	Car club	Taxi	Loading
Bridge								
Park Village East		25	8					
Mornington Terrace	9	3						
Lancing Street			3	1				1

- 6.4.174 A total of 29 parking bays, located in the southbound bus lane on A4200 Eversholt Street, will be suspended due to utility works and the provision of temporary station taxi facilities.
- 6.4.175 In addition, a total of 26 parking bays may be suspended on Drummond Crescent to provide a secondary taxi rank during construction. Included in this total are residential permit holder bays (9), pay and display bays (2) and motorcycle bays (15).
- 6.4.176 Parking bays on Starcross Street and Stephenson Way may also need to be suspended to allow delivery and refuse collection vehicles to turn.
- 6.4.177 To manage the loss of the three disabled parking spaces in the Euston station car park, opportunities for relocation will be considered through the detailed construction planning stages. One potential location that could be used to provide disabled parking spaces is the service deck.
- 6.4.178 In order to mitigate against parking suspensions, bays will, where possible, be re-provided to make up for any shortfall in availability that may arise from the parking suspensions. Additionally, the disabled bays that will be suspended on Lancing Street and Stanhope Street will be re-provided in an appropriate location.
- 6.4.179 Where possible, the loss of residents permit holders and permit holder bays shall be re-provided at locations that are currently designated as pay and display.

### **Private parking**

- 6.4.180 A number of public and private off-street parking spaces will also be temporarily or permanently suspended during the construction programme. The parking spaces are shown in Table 6-56.

Table 6-56: Private parking loss due to temporary suspensions

<b>Location</b>	<b>Parking spaces</b>
Park Village East (off-street residents parking)	31 (approximately)
Ampthill Estate	10

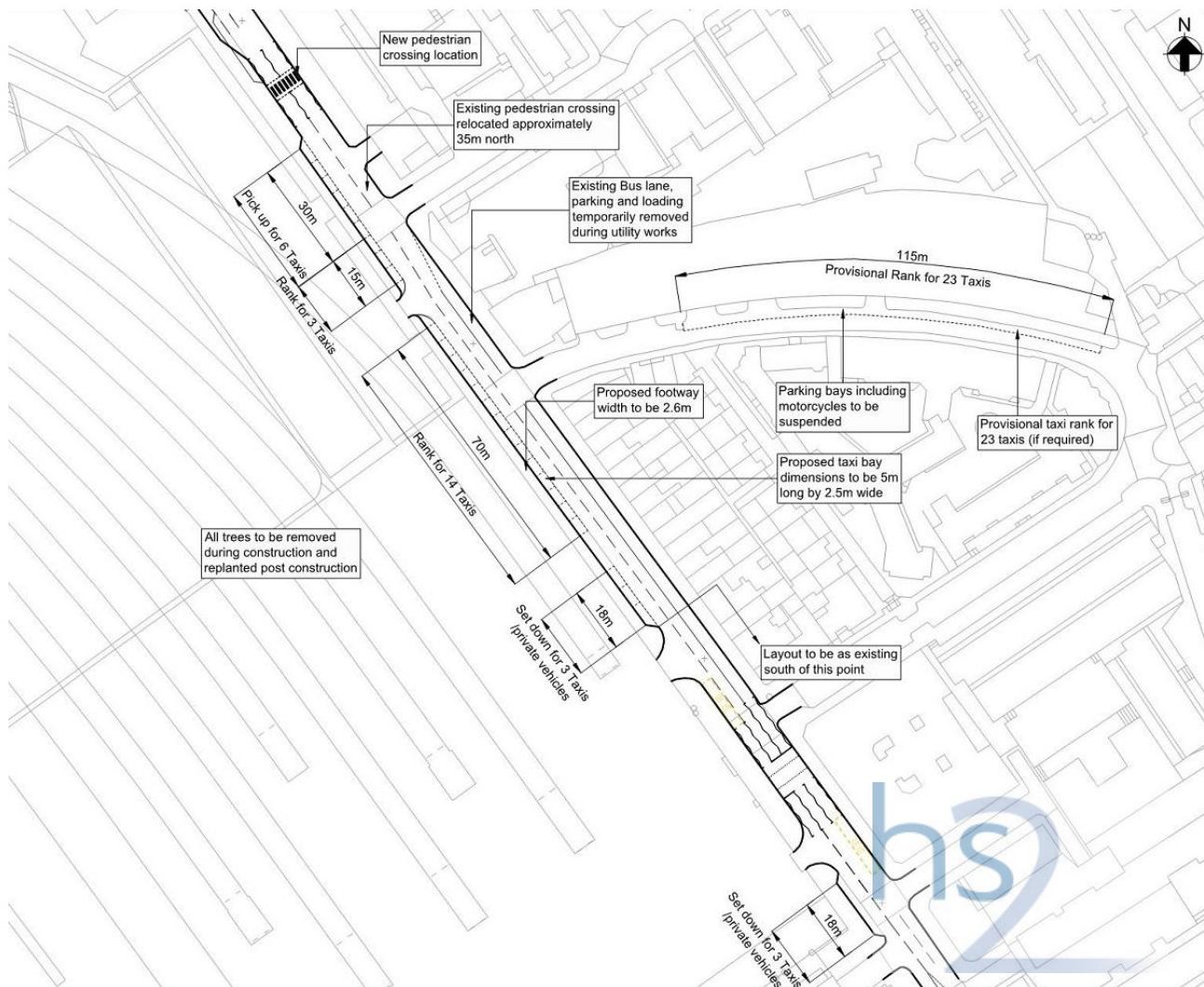
- 6.4.181 Due to construction works, a section of Park Village East will be closed to traffic, preventing vehicular access to off-street parking at a number of properties, resulting in the loss of approximately 31 off-street parking spaces.
- 6.4.182 Due to the construction of a temporary utilities bridge connecting A400 Hampstead Road to the Ampthill Estate, approximately 10 private parking spaces within the Ampthill estate will be temporarily suspended. A total of 13 pay and display bays on Robert Street will be converted to residential permit holder bays to offset the loss of residential permit holder bays on Stanhope Street.

### *Taxi and private car*

#### **Taxi**

- 6.4.183 During construction, the existing taxi facility will be demolished and a replacement facility will be provided. The existing taxi facilities will be closed by the third quarter of 2016 and continue to remain closed until the new western taxi facility is open in quarter three of 2022. During this period, an alternative facility will be required to serve Euston station.
- 6.4.184 Following the closure of Cardington Street and Melton Street, provision for taxis at Euston station will be provided as follows:
- an in-set taxi pick-up, set-down and ranking facility located on the west side of A4200 Eversholt Street, adjacent to the eastern side of the station, as shown in Figure 6-68; and
  - the potential for a secondary 'feeder' rank on Doric Way.

Figure 6-68: In-set taxi facility on A4200 Eversholt Street



6.4.185 The existing taxi facilities at Euston station provide the following approximate number of set-down, pick-up and ranking space:

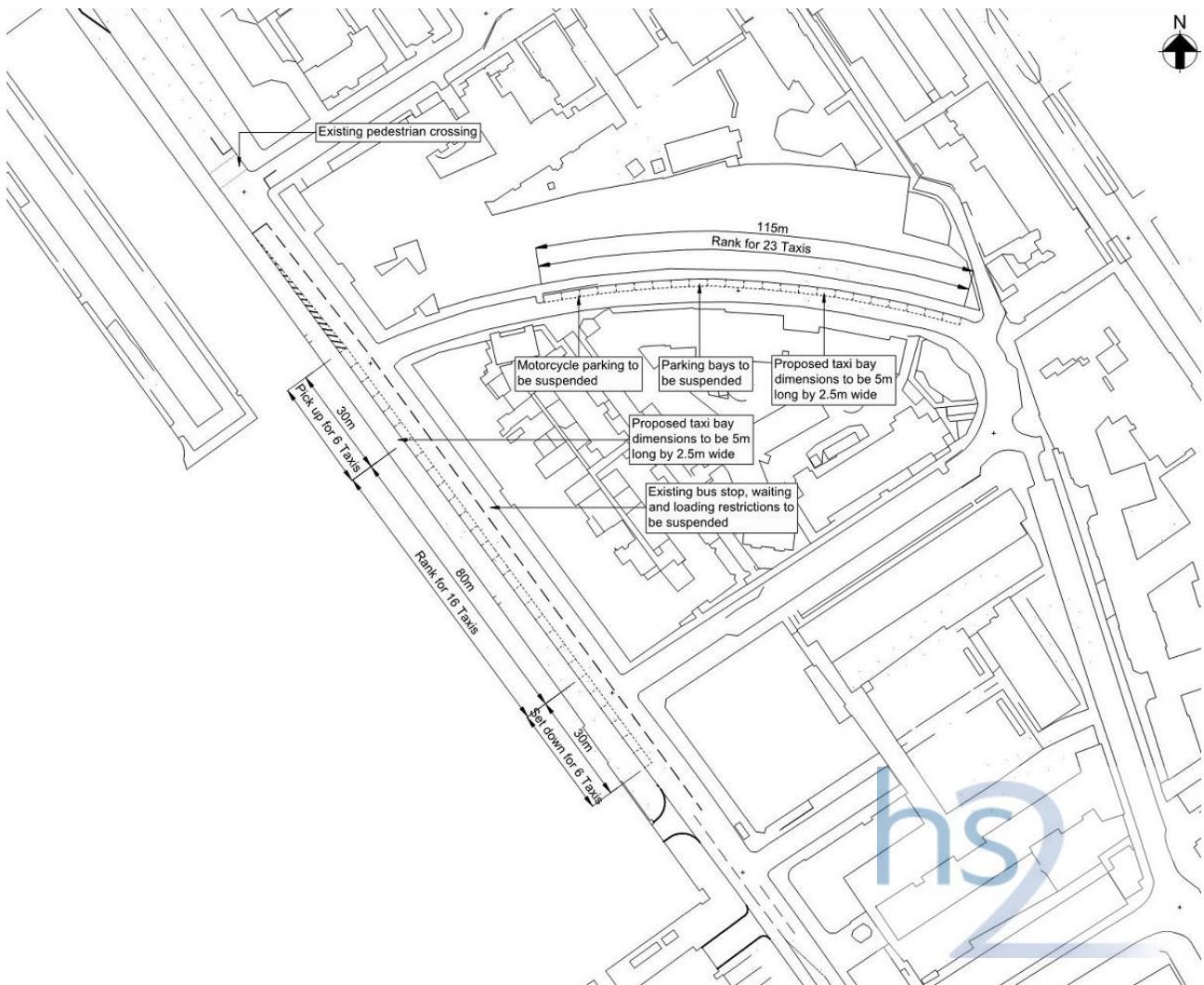
- pick-up and ranking of approximately 44 spaces; and
- set-down providing approximately 5 spaces.

6.4.186 Excluding 'feeder' rank spaces, the proposed facility on A4200 Eversholt Street will provide the following:

- pick-up and ranking of approximately 22 spaces; and
- set-down of approximately 3 spaces.

- 6.4.187 If additional taxi capacity is required during construction, an option that could be considered is to provide additional temporary capacity for taxis on Drummond Crescent, as shown in Figure 6-69. This shows a single line of taxi ranking on A4200 Eversholt Street leading to the pick-up point to the north. The existing parking on the north side of Drummond Crescent would need to be suspended for the period during which the feeder rank is at this location.

Figure 6-69: A4200 Eversholt Street taxi facility with feeder rank on Doric Way



- 6.4.188 Access from the taxi facility to the NR and LU stations will be provided using the Platform 1 to 3 concourse access ramps. Where appropriate, passengers with reduced mobility (PRM) may use the existing mobility assistance service. These movements will be routed via the concourse or the existing basement, as appropriate.
- 6.4.189 The taxi concept, during construction, will need to be developed in detail with Network Rail, TfL, residents and taxi representatives, to ensure a series of operable schemes are devised. When making these decisions, consideration will need to be given to:

- the acceptability and available space for the location of the facilities;
- the level of operational supervision;
- user experience, wayfinding, convenience, waiting area infrastructure etc;
- options for routeing incoming and departing taxis;
- additional journey lengths;
- passenger connections and queue lengths; and
- mobility assistance operations.

6.4.190 The temporary taxi facilities will continue to operate until quarter three of 2023, when the new permanent taxi facility at Euston station is expected to be in operation at the western side of the station. At this point, all taxi operations during the final stages of construction will operate from the final location on the western side of the station.

### **Persons with restricted mobility (PRM) access**

6.4.191 Escorted and disabled pick-up and set-down facilities will be located within the station footprint (northeast end of the station). Mobility assistance buggies will operate from the conventional concourse to/from this location and will provide users with a service direct to the appropriate platform/service for arrivals/departures.

6.4.192 The location of the escorted and disabled pick-up and set-down facilities will change at two points during construction. The existing access point will be closed in October 2016 and be re-located within the station footprint (north-east end of the station) to interface with the relocated taxi pick-up/set-down on A4200 Eversholt Street. It is anticipated that mobility assistance buggies will be available on demand, providing access to both the concourse mobility assistance reception and the appropriate platform/service for arrivals/departures. Engagement with NR is on-going to develop the infrastructure and management processes required to enable this facility to be operated in a satisfactory manner.

6.4.193 This will remain in operation until the pick-up and set-down operation moves to the final design configuration at the west of the high speed concourse in 2022.

### **Taxi impacts**

6.4.194 Changes to taxi flows as a result of the changes in taxi operations are shown in Table 6-57, during the AM peak hour, and

6.4.195 Table 6-58, for PM peak hours. This indicates that taxi flows reduce on Gordon Street, Gordon Square and Woburn Place, as a result of the Gordon Street closure, and on the Melton Street access to the taxi rank which is closed during construction.

Table 6-57: Changes in taxi flows - AM peak hour (08:00-09:00)

Location	Direction	2021 baseline	Scenario 1	Scenario 2	Scenario 3	All vehicles actual change from 2021 baseline		
						Scenario 1	Scenario 2	Scenario 3
Outer Circle (between Park Square East and Chester Road)	Northbound	13	19	8	25	6	-6	12
	Southbound	39	44	41	39	5	3	0
A4201 Albany Street (between Robert Street and Longford Street)	Northbound	15	13	15	18	-2	0	3
	Southbound	13	13	17	16	0	5	4
Stanhope Street (between Longford Street and Robert Street)	Northbound	24	9	9	20	-15	-15	-4
	Southbound	19	11	10	17	-8	-9	-2
A400 Hampstead Road (between Drummond Street and Robert Street)	Northbound	30	46	57	22	16	26	-8
	Southbound	12	109	76	60	97	64	48
Cardington Street (north of Drummond Street)	Northbound	9	0	0	0	-9	-9	-9
	Southbound	27	0	0	0	-27	-27	-27
New Cobourg Street (north of Starcross Street)	Northbound	-	-	-	-	-	-	-
	Southbound	-	-	-	-	-	-	-
A4200 Eversholt St (between Phoenix Road and Polygon Road)	Northbound	9	129	166	165	120	157	156
	Southbound	21	49	90	103	28	69	82
Chalton Street (between Euston Road and Phoenix Road)	Northbound	14	185	144	149	171	130	135
	Southbound	2	6	6	6	5	4	4
Midland Road (between Brill Place and Euston Road)	Southbound	35	35	39	31	0	4	-4

Location	Direction	2021 baseline	Scenario 1	Scenario 2	Scenario 3	All vehicles actual change from 2021 baseline		
						Scenario 1	Scenario 2	Scenario 3
A5202 Pancras Road (between Euston Road and Goods Way)	Northbound	49	51	51	51	2	2	2
	Southbound	52	58	57	56	6	4	4
A5203 York Way (between Euston Road and Caledonia Street)	Northbound	18	19	19	19	1	1	1
A4201 Portland Place (between Devonshire Street and Park Crescent)	Northbound	40	44	10	38	4	-30	-2
	Southbound	81	75	70	74	-6	-10	-7
B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street)	Southbound	45	20	20	26	-25	-25	-19
Cleveland Street (between Greenwell Street and Clipstone Street)	Southbound	1	1	1	1	0	0	0
A400 Tottenham Court Road (between Grafton Way and Warren Street)	Southbound	75	99	101	92	24	27	17
A400 Gower Street (between Grafton Way and Gower Place)	Southbound	44	66	62	67	22	18	22
Gordon Street (between Endsleigh Gardens and Euston Road)	Northbound	95	0	0	0	-95	-95	-95
	Southbound	63	0	0	0	-63	-63	-63
A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)	Northbound	77	78	76	80	1	-1	3
	Southbound	38	58	59	62	20	22	25
B504 Judd Street (between	Northbound	26	30	32	29	4	6	3

Location	Direction	2021 baseline	Scenario 1	Scenario 2	Scenario 3	All vehicles actual change from 2021 baseline		
						Scenario 1	Scenario 2	Scenario 3
Bidborough Street and Euston Road)	Southbound	43	36	44	37	-7	1	-6
A501 Gray's Inn Road (east of Birkenhead Street)	Northbound	111	132	130	135	21	19	24
A501 Euston Road (between Euston Circus and Melton Street)	Eastbound	385	385	385	384	1	0	-1
	Westbound	299	149	183	196	-150	-116	-102
A501 Euston Road (between Melton Street and A4200 Upper Woburn Place)	Eastbound	165	400	399	398	234	234	233
	Westbound	158	149	183	196	-9	25	38
A501 Euston Road (between A4200 Upper Woburn Place and Churchway)	Eastbound	154	349	326	346	195	173	192
	Westbound	96	115	132	132	19	36	36

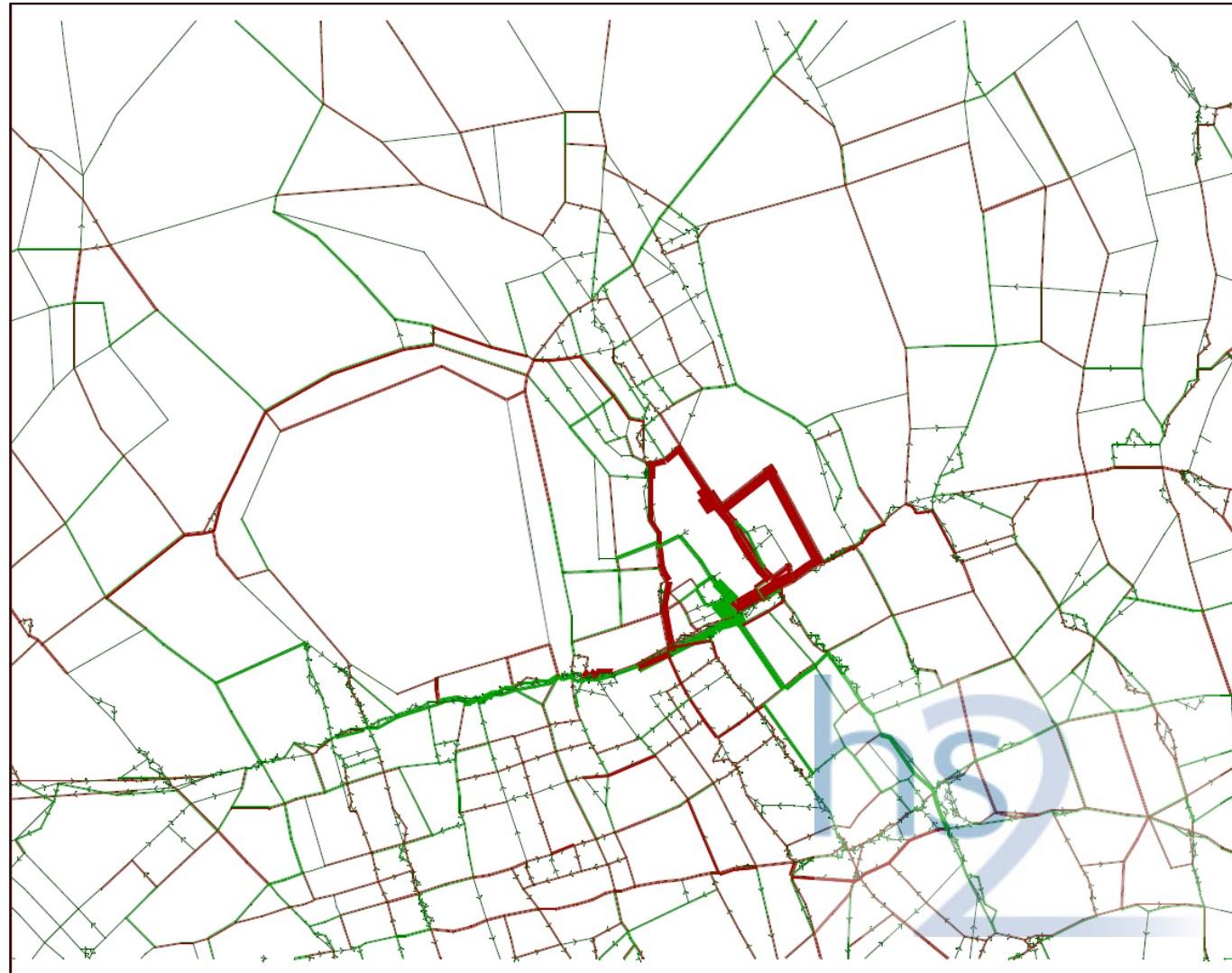
Table 6-58: Changes in taxi flows - AM peak hour (17:00-18:00)

Location	Direction	2021 baseline	Scenario 1	Scenario 2	Scenario 3	All vehicles actual change from 2021 baseline		
						Scenario 1	Scenario 2	Scenario 3
Outer Circle (between Park Square East and Chester Road)	Northbound	118	99	75	126	-19	-43	8
	Southbound	5	12	13	6	7	8	1
A4201 Albany Street (between Robert Street and Longford Street)	Northbound	9	18	21	11	8	12	2
	Southbound	45	65	70	57	20	25	12
Stanhope Street (between Longford Street and Robert Street)	Northbound	10	8	10	10	-2	1	0
	Southbound	37	22	22	16	-15	-15	-21
A400 Hampstead Road (between Drummond Street and Robert Street)	Northbound	32	31	32	22	-1	1	-9
	Southbound	2	54	43	57	52	41	56
Cardington Street (north of Drummond Street)	Northbound	58	0	0	0	-58	-58	-58
	Southbound	86	0	0	0	-86	-86	-86
New Cobourg Street (north of Starcross Street)	Northbound	-	-	-	-	-	-	-
	Southbound	-	-	-	-	-	-	-
A4200 Eversholt St (between Phoenix Road and Polygon Road)	Northbound	46	167	181	169	121	135	123
	Southbound	39	204	233	221	166	194	183
Chalton Street (between Euston Road and Phoenix Road)	Northbound	24	81	92	79	56	67	55
	Southbound	10	62	63	62	52	53	52
Midland Road (between Brill Place and Euston Road)	Southbound	251	322	322	300	72	71	50

Location	Direction	2021 baseline	Scenario 1	Scenario 2	Scenario 3	All vehicles actual change from 2021 baseline		
						Scenario 1	Scenario 2	Scenario 3
A5202 Pancras Road (between Euston Road and Goods Way)	Northbound	350	428	439	409	78	89	59
	Southbound	116	109	112	116	-6	-3	0
A5203 York Way (between Euston Road and Caledonia Street)	Northbound	24	34	38	36	10	13	11
A4201 Portland Place (between Devonshire Street and Park Crescent)	Northbound	65	48	36	55	-17	-29	-10
	Southbound	70	72	73	67	3	3	-2
B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street)	Southbound	92	45	39	56	-47	-53	-35
Cleveland Street (between Greenwell Street and Clipstone Street)	Southbound	104	57	53	60	-47	-51	-44
A400 Tottenham Court Road (between Grafton Way and Warren Street)	Southbound	183	233	255	210	49	71	27
A400 Gower Street (between Grafton Way and Gower Place)	Southbound	54	113	104	95	59	50	41
Gordon Street (between Endsleigh Gardens and Euston Road)	Northbound	265	0	0	0	-265	-265	-265
	Southbound	136	0	0	0	-136	-136	-136
A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)	Northbound	113	297	308	298	184	195	185
	Southbound	242	362	376	372	120	135	130
B504 Judd Street (between	Northbound	44	62	61	65	17	16	21

Location	Direction	2021 baseline	Scenario 1	Scenario 2	Scenario 3	All vehicles actual change from 2021 baseline		
						Scenario 1	Scenario 2	Scenario 3
Bidborough Street and Euston Road)	Southbound	101	113	119	112	12	18	11
A501 Gray's Inn Road (east of Birkenhead Street)	Northbound	225	249	244	246	23	18	21
A501 Euston Road (between Euston Circus and Melton Street)	Eastbound	262	328	341	318	66	80	57
	Westbound	447	424	421	420	-22	-26	-27
A501 Euston Road (between Melton Street and A4200 Upper Woburn Place)	Eastbound	387	496	514	470	108	127	83
	Westbound	258	424	423	420	166	165	161
A501 Euston Road (between A4200 Upper Woburn Place and Churchway)	Eastbound	304	386	409	368	82	105	64
	Westbound	313	347	343	342	34	30	29

Figure 6-70: Taxi impacts on the local highway network - Scenario 1 AM peak hour (08:00-09:00) (pcus)



*Note: Green bands refer to decreasing traffic flows and red bands refer to increasing traffic flows*

Figure 6-71: Taxi impacts on the local highway network - Scenario 1 PM peak hour (17:00-18:00) (pcus)

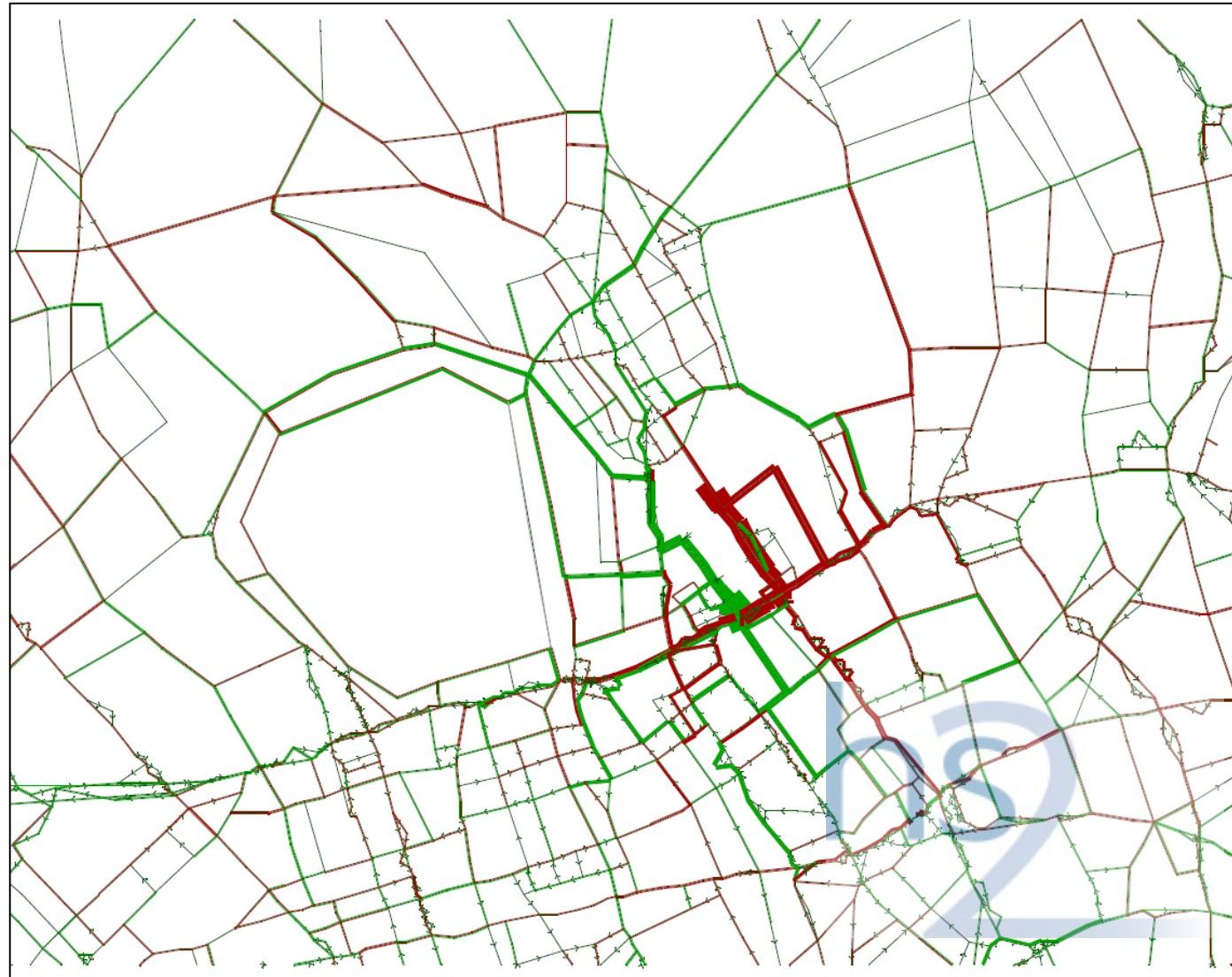


Figure 6-72: Taxi impacts on the local highway network - Scenario 2 AM peak hour (08:00-09:00) (pcus)

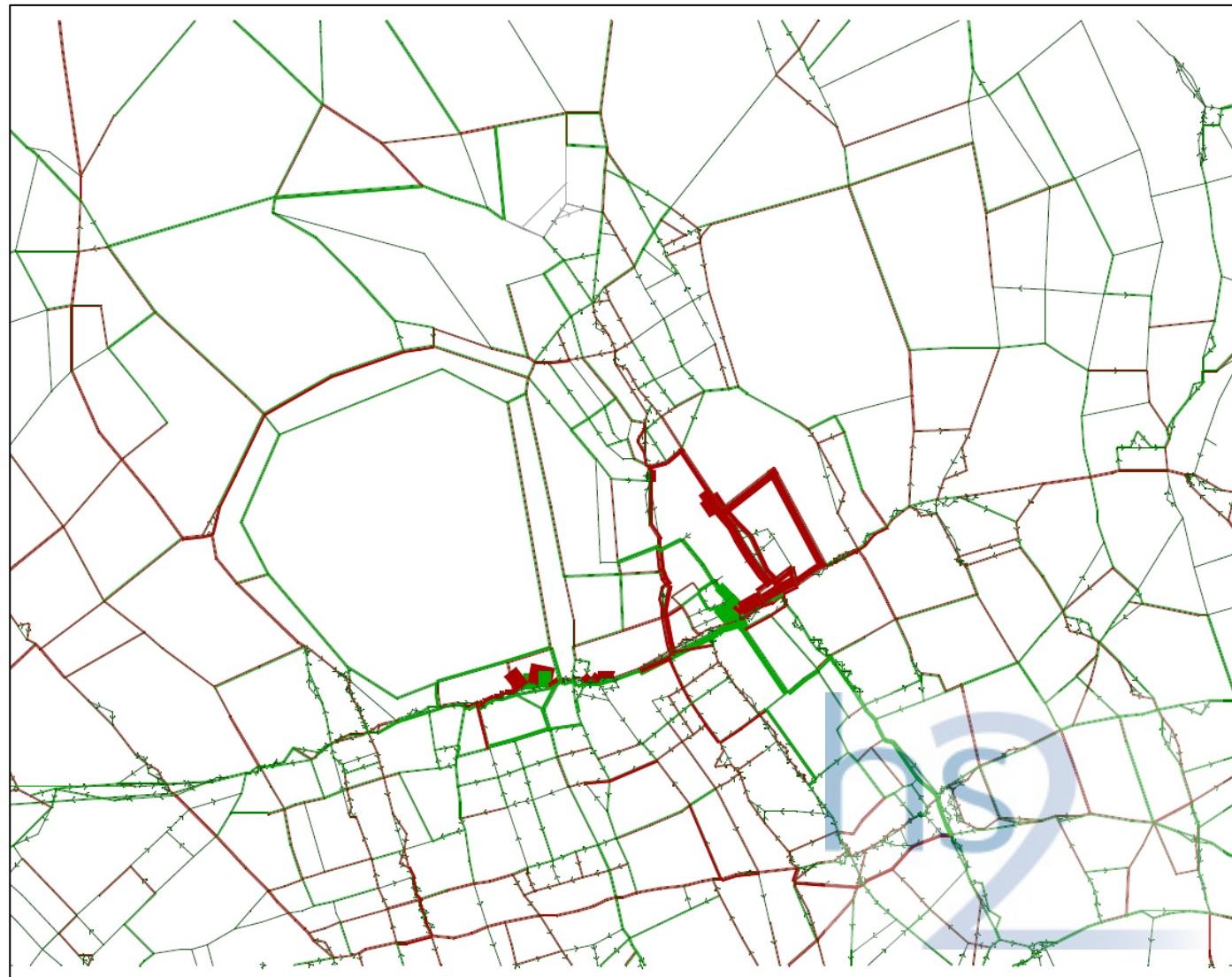


Figure 6-73: Taxi impacts on the local highway network - Scenario 2 PM peak hour (17:00-18:00) (pcus)

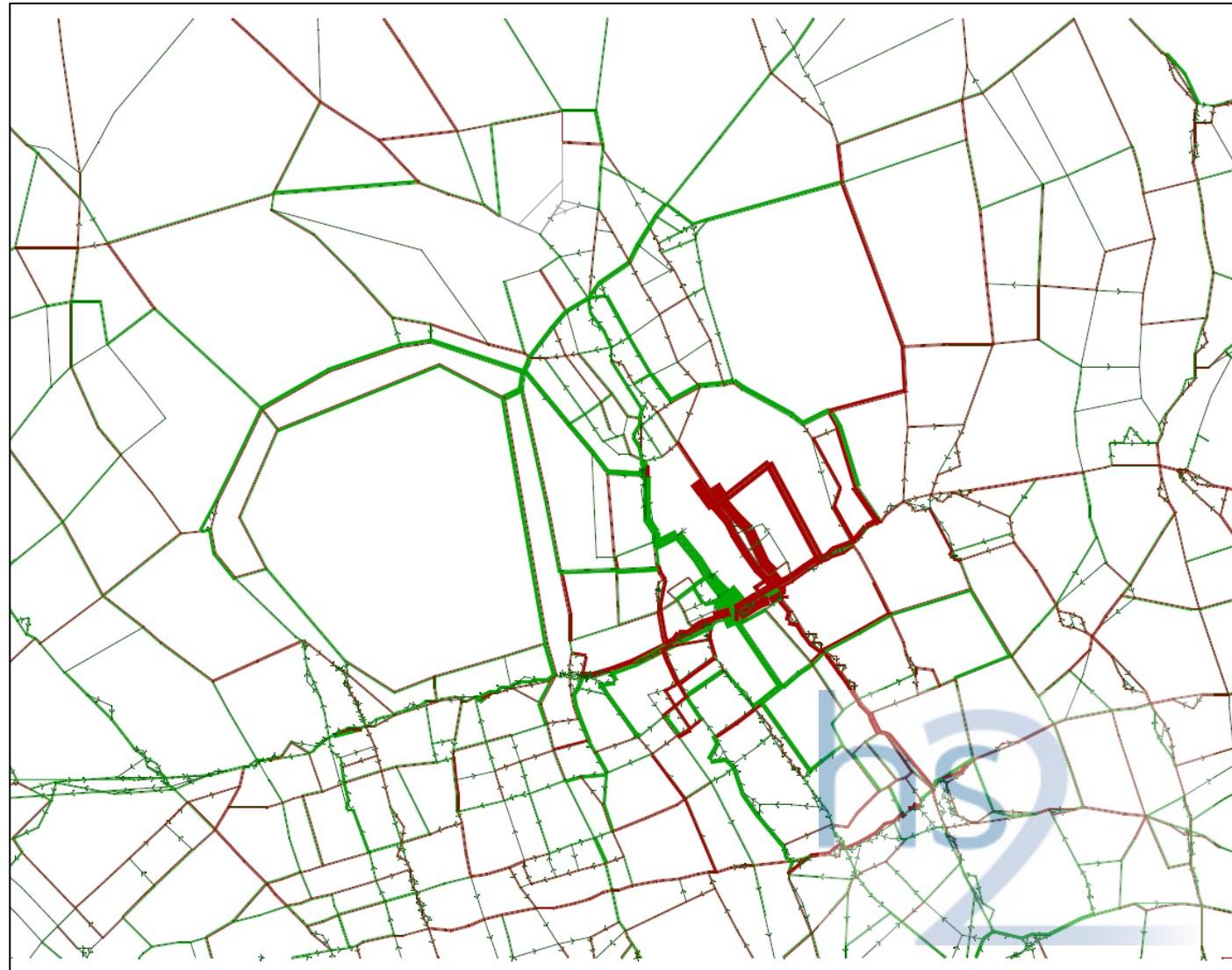


Figure 6-74: Taxi impacts on the local highway network - Scenario 3 AM peak hour (08:00-09:00) (pcus)

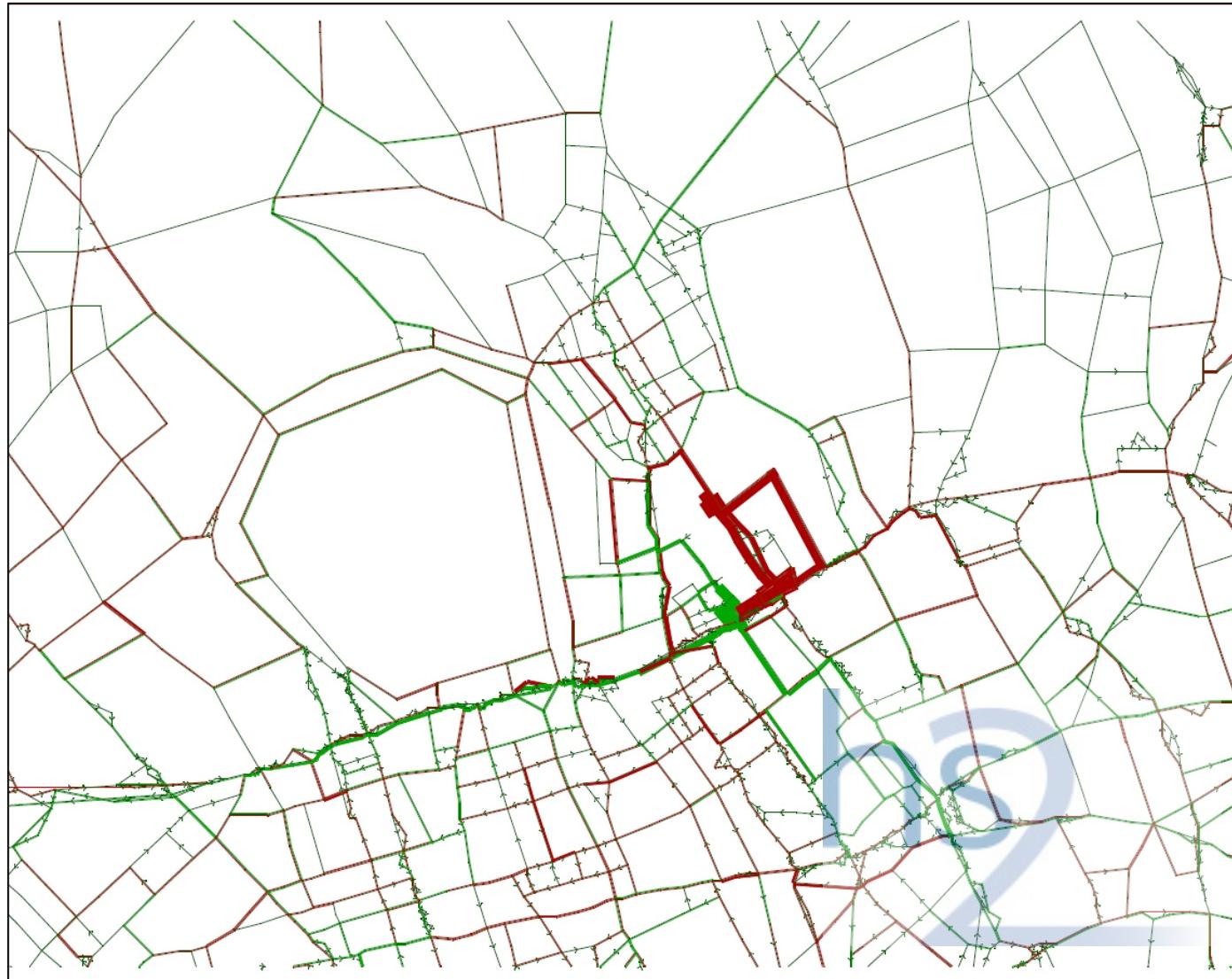
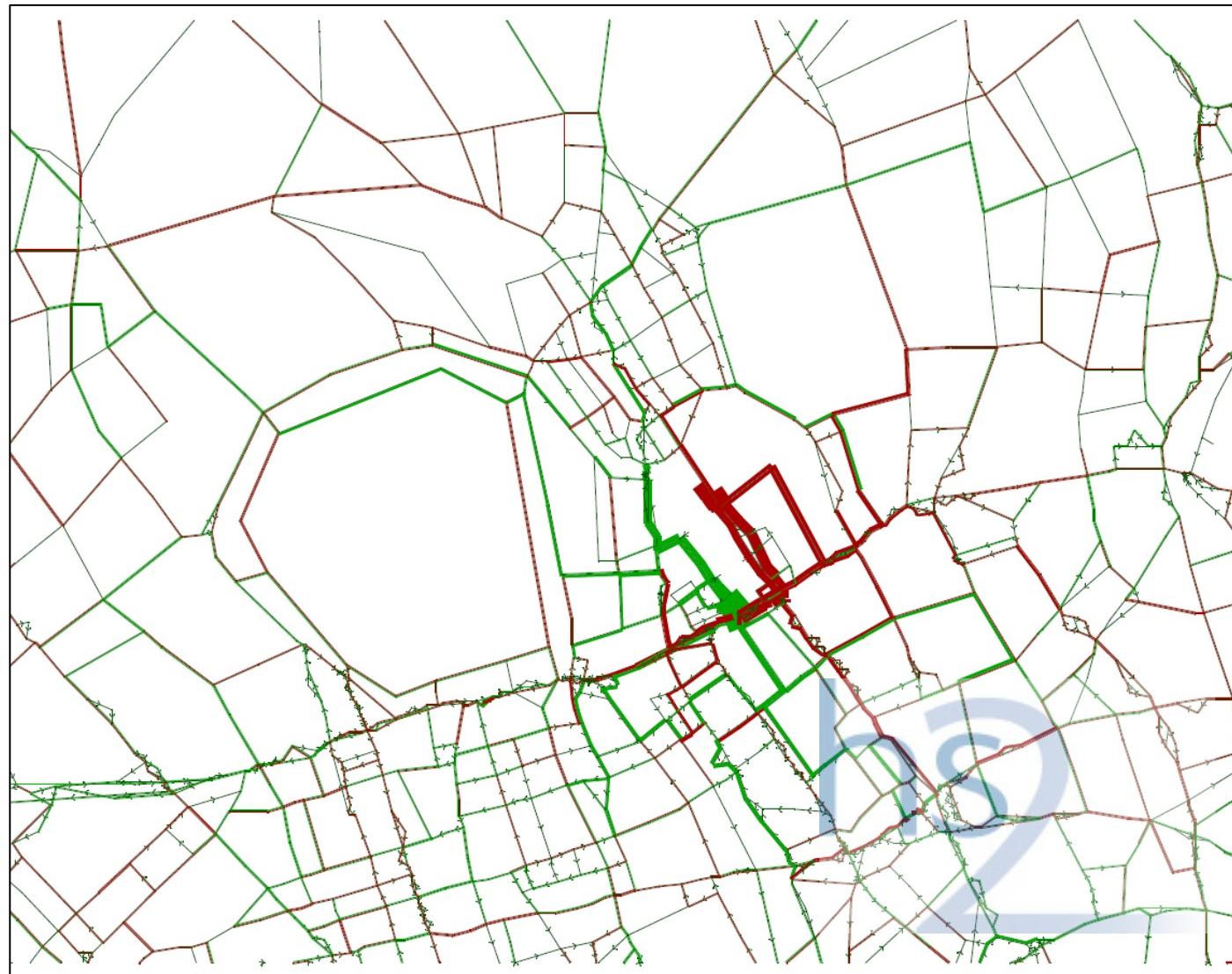


Figure 6-75: Taxi impacts on the local highway network - Scenario 3 PM peak hour (17:00-18:00) (pcus)



- 6.4.196 As a result of moving the taxi facility to A4200 Eversholt Street, the flow of taxis will increase on the following roads:
- A501 Euston Road between Gordon Street and A4200 Eversholt Street;
  - A4200 Eversholt Street, Polygon Road and Chalton Street; and
  - A400 Hampstead Road.
- 6.4.197 The largest increase is approximately 170 taxis per hour in the AM peak hour on Chalton Street. The changes observed during the interpeak and PM peak hours are similar to those of the AM peak hour.
- 6.4.198 As well as the increases in taxi flows, there are also reductions on a number of roads, particularly during the PM peak. Apart from taxis not using roads that are closed including Cardington Street, Melton Street and Gordon Street, there are flow reductions on A400 Hampstead Road, Albany Street, Outer Circle, A400 Camden High Street (northbound and southbound), A5202 Pancras Road, A503 Camden Road, Park Village East, A400 Tottenham Court Road, Malet Street and Gordon Square.

### *Highway impacts*

- 6.4.199 In order to assess the different combinations of enabling works, utility diversions and construction lorry movements through the construction programme, the impacts have been considered for three distinct temporal phases as summarised below:
- Scenario 1, 2017, corresponding to early enabling work and highway utilities with around 70% of the maximum construction traffic;
  - Scenario 2, 2019, corresponding to the main station works together with peak month (i.e. the maximum total) of construction traffic; and
  - Scenario 3, 2021, corresponding to the majority of enabling work with around 90% of the maximum construction traffic.
- 6.4.200 For each scenario, there are different levels of construction traffic, together with different patterns of road closures and traffic management, impacting the highway network.

## Lorry holding area

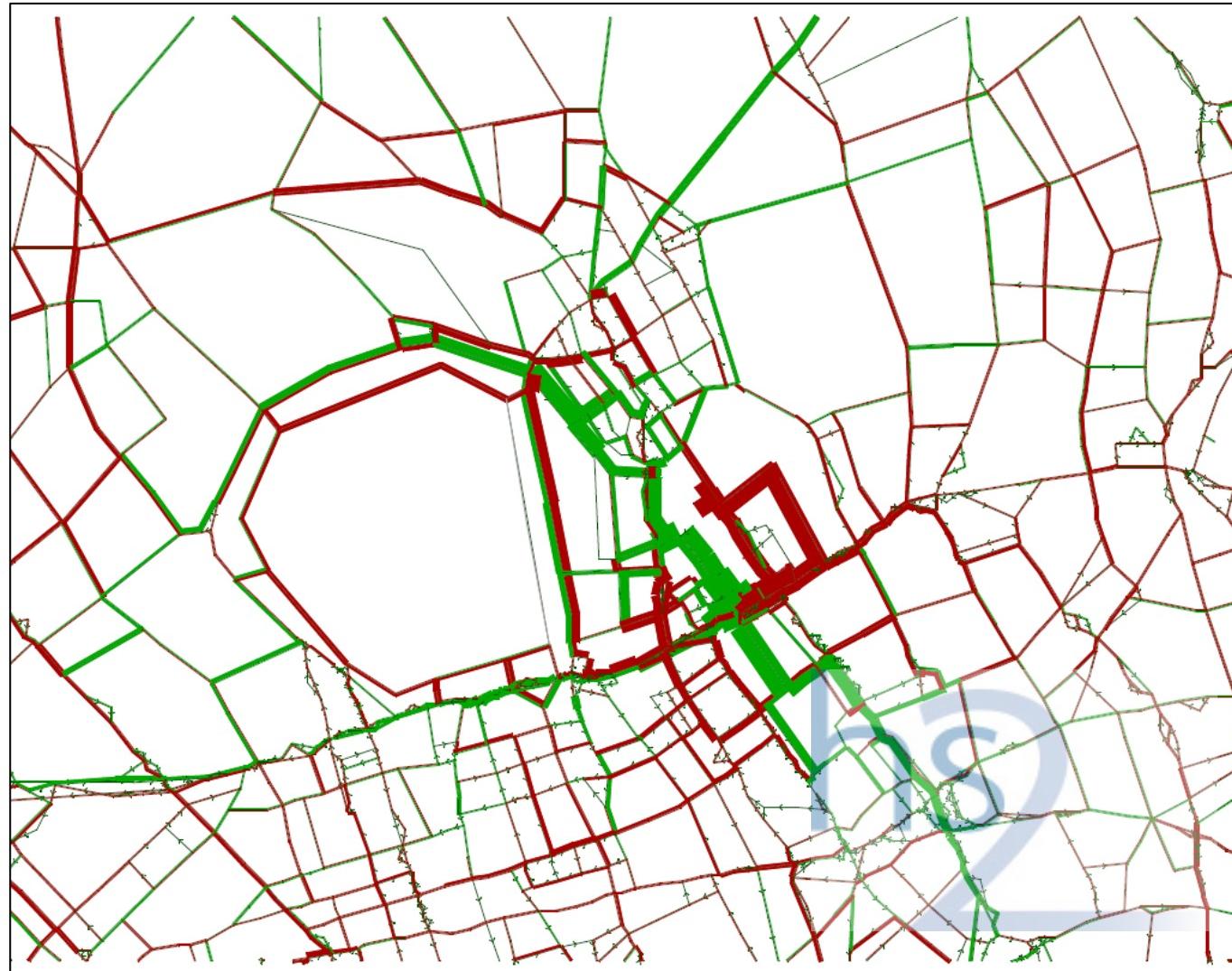
- 6.4.201 A lorry holding area at ZSL London Zoo coach park has been assessed to support the Euston station construction works. The lorry holding area is shown on CT-05-001. As a result of the amount of utility works taking place on roads surrounding the lorry holding area early on in the construction programme, it has been assumed that the site will not be operational until after these utility works are complete at the end of 2017. The lorry holding area will, therefore, be operational during construction Scenarios 2 and 3 but not Scenario 1. For the purpose of this assessment, access and egress to the lorry holding area will be via Prince Albert Road. The lorry holding area will generate a maximum of 100 combined daily two-way vehicles. The main route to the lorry holding area is from Euston Road via Albany Street.

## Highway impacts - Scenario 1, 2017

- 6.4.202 Scenario 1 reflects the early enabling work and utility works on the highway, together with approximately 70% of the maximum construction traffic.
- 6.4.203 The diversion impacts for the AM and PM peak hours are illustrated in Figure 6-76 and Figure 6-77 respectively, and described as follows:
- traffic flow reductions on A4201 Albany Street, Park Village East, Mornington Street, Granby Terrace, Varndell Street, Robert Street and A400 Hampstead Road (north of Cardington Street) due to the closures of Granby Terrace, Varndell Street, Cardington Street and Melton Street;
  - traffic flow reductions south of A501 Euston Road on Gordon Street and Gordon Square as a result of the Gordon Street closure;
  - removal of traffic from those roads closed as part of the station works;
  - increase in traffic on A4200 Eversholt Street, Polygon Road and Chalton Street which is an alternative north to south route to A400 Hampstead Road and Melton Street/Cardington Street;
  - increase in traffic on A4200 Eversholt Street due to the relocation of the taxi facility from its existing location;
  - increase in traffic on A400 Hampstead Road (south of Cardington Street), which is an alternative northbound and southbound route to Cardington Street;
  - increase in traffic on A4201 Albany Street/Outer Circle in the southbound direction, used as an alternative to Park Village East (AM, PM);
  - increase in traffic on Pancras Way, Goods Way and A5200 York Way, as an alternative northbound and southbound route;
  - increase in traffic on Camden Street, Crowndale Road and Midland Road, as an alternative southbound route to A4200 Eversholt Street; and

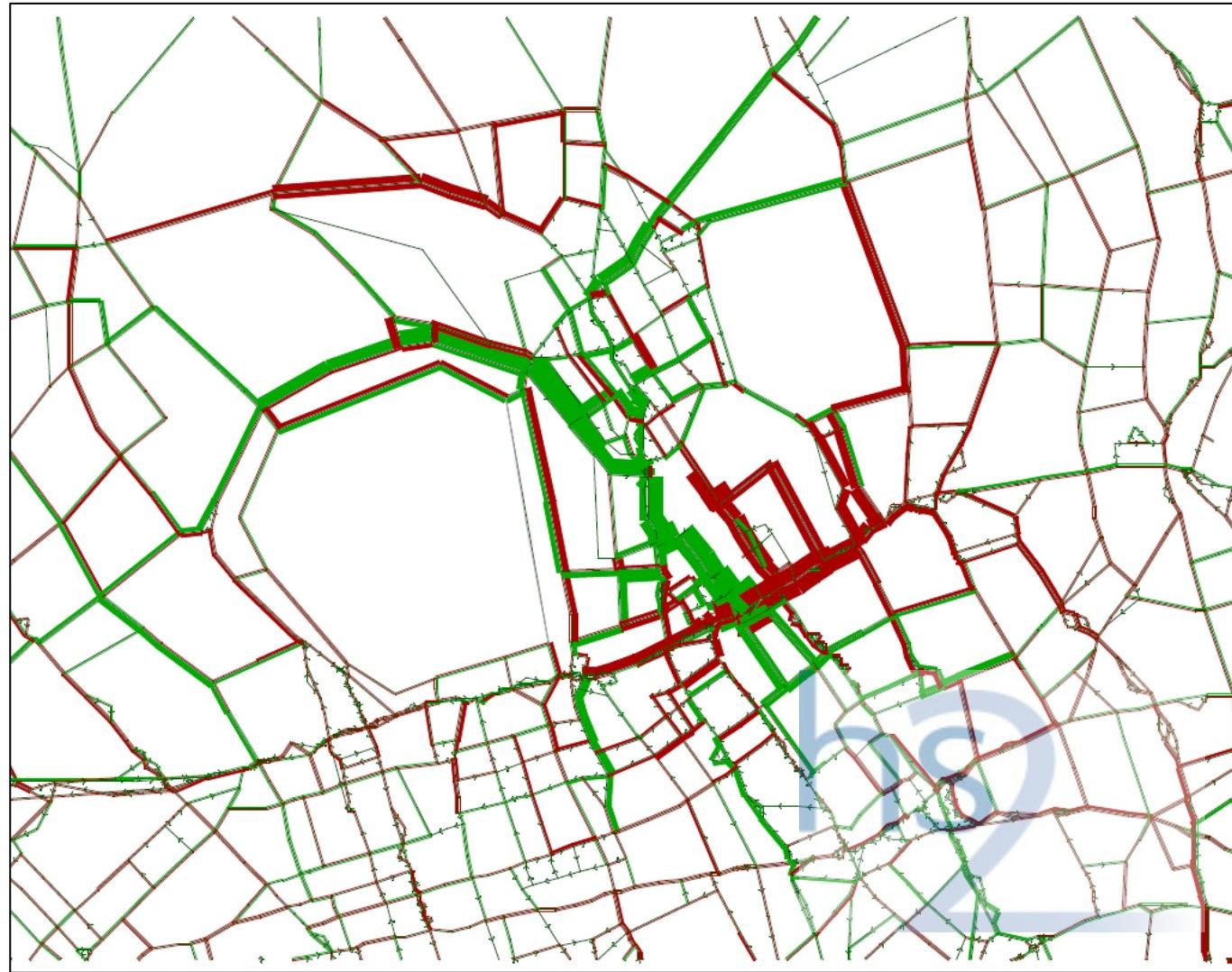
- increase in traffic on Adelaide Road and A41 Finchley Road.
- 6.4.204 The pattern of flow changes is similar for the AM and PM peak hours. The average inter-peak hour also shows a similar pattern, but with lower levels of traffic flow change.

Figure 6-76: AM peak hour (08:00-09:00) traffic flow impacts - Scenario 1 vs 2021 future baseline (pcus)



Note: Green bands refer to decreasing traffic flows and red bands refer to increasing traffic flows

Figure 6-77: PM peak hour (17:00-18:00) traffic flow impacts - Scenario 1 vs 2021 future baseline (pcus)



Note: Green bands refer to decreasing traffic flows and red bands refer to increasing traffic flows

- 6.4.205 For Scenario 1, increases in the daily traffic flows are expected on a number of roads in the vicinity of Euston station, due to a combination of construction vehicles accessing worksites and highway interventions. Increases in traffic are a result of construction vehicles and general traffic diverted from their usual routes.
- 6.4.206 In order to capture flow changes around Euston and further north, three screenlines were defined, one running east-west immediately south of Euston Road, one east-west immediately north of Euston Road and one further north running east-west between Caledonian road and A5 Kilburn High Road. These are shown in Table 6-59 and Table 6-60 for north and south of Euston Road, together with 3 locations on Euston Road for the AM and PM peak hour respectively and in Table 6-61 and Table 6-62 for the Camden screenline for the AM and PM peak.
- 6.4.207 For the screenlines north and south of Euston Road, the largest increases are in the northbound direction north of Euston Road with traffic increasing by 19% in the AM peak hour and 7% in the PM peak. Roads with the largest absolute flow increases are A400 Hampstead Road, A4200 Eversholt Street and Chalton Street. Northbound HGV movements increase by 50 vehicles (+40%) and 26 vehicles/hour (+80%) for the AM and PM peak hours respectively. South of Euston Road, flows across the screenline are virtually unchanged, although there are increases on Tottenham Court Road, Gower Street and Upper Woburn Place, associated primarily with the closure of Gordon Street. Flows on Euston Road increase most in the eastbound direction, between 6% and 20% in the AM peak hour and by around 20% in the PM peak hour.
- 6.4.208 There is very little change between Scenario 1 and the baseline across the Camden screenline, with a 1%-2% difference in all vehicles in both directions across the AM and PM peaks. However, there is a modest increase in HGVs of 5% northbound in the AM peak hour and 11% southbound in the PM peak, largely as a result of increases on Avenue Road and Finchley Road. The absolute increase in HGVs is small at around 15 vehicles per hour across the screenline as a whole.
- 6.4.209 Those roads identified as having a substantial increase in daily traffic in Scenario 1, are reported in Table 6-63 and Table 6-64, for Scenario 1. This indicates that those roads with the largest increases in HGVs, in both absolute and percentage terms, are roads around Euston station used by construction traffic including Robert Street, Eversholt Street, A404 Harrow Road and A5205 St Johns Wood Road. For all vehicles, the largest increases are on A4200 Eversholt Street, Polygon Road and Chalton Street.
- 6.4.210 A number of roads also experience a decrease in general traffic in Scenario 1, across both peak hours, namely, B506 Great Portland Street southbound, Mornington Crescent northbound, Robert Street westbound (despite an increase in HGV flows) and A5205 St Johns Wood Road eastbound.

Table 6-59: 2021 construction Scenario 1, Euston screenlines AM Peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
<b>North of Euston Road</b>											
Outer Circle (between Park Square East and Chester Road)	Northbound	268	0	256	0	293	0	37	0	14%	
	Southbound	190	0	201	0	271	0	70	0	35%	
A4201 Albany Street (between Robert Street and Longford Street)	Northbound	308	26	249	48	192	14	-80	-10	-29%	-43%
	Southbound	276	16	277	33	434	20	141	3	48%	19%
Stanhope Street (between Longford Street and Robert Street)	Northbound	64	3	94	8	97	3	0	-1	0%	-19%
	Southbound	315	6	310	13	159	4	-158	-3	-50%	-39%
A400 Hampstead Road (between Drummond Street and Robert Street)	Northbound	321	19	291	34	425	47	116	30	38%	174%
	Southbound	656	47	477	81	608	60	91	19	18%	48%
Cardington Street (north of Drummond Street)	Northbound	117	4	117	8	0	0	-121	-4	-100%	-100%
	Southbound	277	11	289	21	0	0	-299	-10	-100%	-100%
New Cobourg Street (north of Starcross Street)	Northbound	-	-	-	-	-	-	-	-	-	-
	Southbound	-	-	-	-	-	-	-	-	-	-
A4200 Eversholt St (between Phoenix Road and Polygon Road)	Northbound	225	13	252	29	407	43	141	29	53%	196%
	Southbound	277	15	282	43	372	19	69	-2	23%	-8%
Chalton Street (between Euston Road and Phoenix Road)	Northbound	66	3	95	10	366	6	266	1	267%	17%
	Southbound	50	2	75	5	131	3	54	1	70%	43%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Midland Road (between Brill Place and Euston Road)	Southbound	577	25	571	57	636	30	37	1	6%	4%
A5202 Pancras Road (between Euston Road and Goods Way)	Northbound	243	10	298	21	347	11	39	0	13%	4%
	Southbound	214	10	216	20	237	10	11	0	5%	2%
A5203 York Way (between Euston Road and Caledonia Street)	Northbound	559	28	526	59	593	30	38	1	7%	3%
<b>South of Euston Road</b>											
A4201 Portland Place (between Devonshire Street and Park Crescent)	Northbound	273	5	286	9	302	4	11	0	4%	-10%
	Southbound	421	14	388	24	413	13	12	1	3%	7%
B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street)	Southbound	258	13	234	25	180	11	-67	-2	-27%	-12%
Cleveland Street (between Greenwell Street and Clipstone Street)	Southbound	170	7	250	16	250	7	-7	0	-3%	-5%
A400 Tottenham Court Road (between Grafton Way and Warren Street)	Southbound	876	68	745	115	943	65	141	8	18%	13%
A400 Gower Street (between Grafton Way and Gower Place)	Southbound	711	27	524	45	685	27	138	4	25%	20%
Gordon Street (between Endsleigh Gardens and Euston Road)	Northbound	317	40	336	43	0	0	-358	-21	-100%	-100%
	Southbound	265	10	284	14	0	0	-291	-7	-100%	-100%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)	Northbound	353	15	380	83	440	45	18	4	4%	9%
	Southbound	608	18	638	48	718	22	56	-2	8%	-10%
B504 Judd Street (between Bidborough Street and Euston Road)	Northbound	166	18	172	31	229	16	42	1	22%	4%
	Southbound	494	24	432	50	416	24	-41	-1	-9%	-6%
A501 Gray's Inn Road (east of Birkenhead Street)	Northbound	1,704	86	1,680	174	1,870	94	104	7	6%	9%
<b>Euston Road</b>											
A501 Euston Road (between Euston Circus and Melton Street)	Eastbound	1,850	97	1,763	201	1,975	110	111	10	6%	10%
	Westbound	1,666	114	1,739	243	1,782	122	-79	1	-4%	1%
A501 Euston Road (between Melton Street and A4200 Upper Woburn Place)	Eastbound	1,630	82	1,579	172	2,056	104	391	19	23%	22%
	Westbound	1,520	87	1,475	222	1,778	118	192	7	12%	7%
A501 Euston Road (between A4200 Upper Woburn Place and Churchway)	Eastbound	1,334	74	1,269	153	1,626	84	280	7	21%	10%
	Westbound	1,499	81	1,461	158	1,695	86	156	7	10%	9%

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Table 6-60: 2021 construction Scenario 1, Euston screenlines PM Peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
<b>North of Euston Road</b>											
Outer Circle (between Park Square East and Chester Road)	Northbound	561	0	594	0	547	0	-46	0	-8%	
	Southbound	216	0	209	0	224	0	15	0	7%	
A4201 Albany Street (between Robert Street and Longford Street)	Northbound	295	6	346	6	365	2	15	-1	4%	-32%
	Southbound	356	5	304	2	397	2	91	1	30%	91%
Stanhope Street (between Longford Street and Robert Street)	Northbound	27	1	54	1	43	1	-11	1	-20%	188%
	Southbound	317	5	168	3	52	0	-118	-1	-69%	-67%
A400 Hampstead Road (between Drummond Street and Robert Street)	Northbound	635	15	630	12	582	25	-55	19	-9%	310%
	Southbound	351	6	331	3	428	23	95	22	29%	1394%
Cardington Street (north of Drummond Street)	Northbound	192	2	162	2	0	0	-163	-1	-100%	-100%
	Southbound	254	5	296	8	0	0	-300	-4	-100%	-100%
New Cobourg Street (north of Starcross Street)	Northbound	-	-	-	-	-	-	-	-	-	-
	Southbound	-	-	-	-	-	-	-	-	-	-
A4200 Eversholt St (between Phoenix Road and Polygon Road)	Northbound	311	6	276	5	396	9	118	6	42%	268%
	Southbound	297	6	283	3	453	1	169	-1	60%	-50%
Chalton Street (between Euston Road and Phoenix Road)	Northbound	99	1	96	3	214	2	117	1	121%	53%
	Southbound	5	0	15	2	116	1	100	0	627%	27%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Midland Road (between Brill Place and Euston Road)	Southbound	547	7	742	24	959	9	205	-2	27%	-21%
A5202 Pancras Road (between Euston Road and Goods Way)	Northbound	185	2	602	8	822	5	216	1	36%	19%
	Southbound	241	4	170	5	183	2	11	0	7%	4%
A5203 York Way (between Euston Road and Caledonia Street)	Northbound	801	18	618	28	673	14	41	0	7%	2%
<b>South of Euston Road</b>											
A4201 Portland Place (between Devonshire Street and Park Crescent)	Northbound	238	0	238	0	231	0	-7	0	-3%	2%
	Southbound	545	9	515	23	569	11	44	0	8%	1%
B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street)	Southbound	385	4	265	2	120	1	-146	0	-55%	-12%
Cleveland Street (between Greenwell Street and Clipstone Street)	Southbound	144	1	271	3	258	1	-15	0	-5%	-9%
A400 Tottenham Court Road (between Grafton Way and Warren Street)	Southbound	991	19	908	21	993	13	75	3	8%	26%
A400 Gower Street (between Grafton Way and Gower Place)	Southbound	566	4	360	11	507	8	141	3	39%	49%
Gordon Street (between Endsleigh Gardens and Euston Road)	Northbound	423	9	417	8	0	0	-421	-4	-100%	-100%
	Southbound	194	3	251	3	0	0	-253	-2	-100%	-100%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)	Northbound	327	6	376	6	602	5	222	2	59%	50%
	Southbound	540	7	624	13	747	6	117	0	19%	-5%
B504 Judd Street (between Bidborough Street and Euston Road)	Northbound	145	2	113	2	175	2	61	1	54%	87%
	Southbound	288	7	292	8	328	4	32	0	11%	6%
A501 Gray's Inn Road (east of Birkenhead Street)	Northbound	1,630	29	1,694	49	1,863	34	144	9	8%	37%
<b>Euston Road</b>											
A501 Euston Road (between Euston Circus and Melton Street)	Eastbound	1,162	37	1,286	17	1,592	19	297	11	23%	134%
	Westbound	1,609	32	1,673	33	1,752	26	63	10	4%	59%
A501 Euston Road (between Melton Street and A4200 Upper Woburn Place)	Eastbound	1,378	36	1,518	15	1,838	13	313	6	21%	74%
	Westbound	1,372	29	1,279	29	1,754	22	461	8	36%	52%
A501 Euston Road (between A4200 Upper Woburn Place and Churchway)	Eastbound	1,133	33	1,214	12	1,502	14	282	8	23%	123%
	Westbound	1,408	26	1,277	32	1,571	22	278	6	21%	40%

Table 6-61: 2021 construction Scenario 1, Camden screenline AM Peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	321	10	338	11	336	12	-1	1	0%	12%
	Southbound	728	43	756	44	738	45	-17	1	-2%	3%
A5200 York Way (north of Vale Road)	Northbound	280	38	293	40	317	40	24	1	8%	1%
	Southbound	573	38	600	39	613	39	13	-1	2%	-2%
A5202 St Pancras Way (north of Baynes Street)	Southbound	716	34	698	34	675	38	-23	4	-3%	11%
Randolph Street (East of Royal College Street)	Eastbound	92	2	123	2	143	2	20	0	16%	4%
Royal College Street (south of Camden Rd)	Northbound	351	25	341	26	338	27	-3	1	-1%	3%
A503 Camden Road (south of Royal College St)	Northbound	563	32	599	32	522	33	-77	1	-13%	2%
	Southbound	880	56	929	56	911	55	-18	-1	-2%	-2%
A400 Camden Street (south of Camden Gardens)	Southbound	1,203	65	1,244	65	1,249	64	5	-1	0%	-2%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	297	18	324	19	273	17	-50	-2	-16%	-10%
	Southbound	268	27	246	27	242	28	-4	1	-2%	2%
Hawley Road	Northbound	1,014	56	1,023	57	1,097	59	75	2	7%	4%
A502 Chalk Farm Road (west of Hawley Street)	Northbound	87	10	88	10	95	10	7	0	8%	-2%
	Southbound	840	43	849	44	924	46	75	2	9%	4%

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Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Primrose Hill Road (south of Adelaide Road)	Northbound	341	15	331	12	323	9	-8	-3	-2%	-25%
	Southbound	640	31	638	32	642	30	4	-2	1%	-6%
Avenue Road (south of B509 Adelaide Road)	Northbound	276	10	271	10	281	13	10	2	4%	22%
	Southbound	885	22	923	22	926	22	3	0	0%	1%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	618	52	660	55	718	67	58	13	9%	23%
	Southbound	841	65	806	66	824	79	19	13	2%	20%
Loudoun Road (south of Alexandra Place)	Northbound	542	10	529	8	554	8	25	0	5%	-4%
	Southbound	314	11	328	12	339	12	11	1	3%	6%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	310	8	308	8	316	8	8	0	2%	2%
	Southbound	568	15	563	15	567	15	4	-1	1%	-6%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	558	30	572	29	582	29	10	0	2%	1%
	Southbound	252	35	272	33	273	33	1	0	0%	0%

Table 6-62: 2021 construction Scenario 1, Camden screenline PM Peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	459	5	482	5	508	5	25	0	5%	4%
	Southbound	484	4	514	5	517	5	3	0	1%	9%
A5200 York Way (north of Vale Road)	Northbound	405	20	475	17	585	17	110	0	23%	1%
	Southbound	366	10	392	10	424	10	32	0	8%	0%
A5202 St Pancras Way (north of Baynes Street)	Southbound	555	6	562	8	582	10	20	3	4%	33%
Randolph Street (East of Royal College Street)	Eastbound	242	1	244	1	240	1	-4	0	-2%	-19%
Royal College Street (south of Camden Rd)	Northbound	485	10	477	12	477	12	1	0	0%	1%
A503 Camden Road (south of Royal College St)	Northbound	876	14	817	15	650	17	-166	2	-20%	11%
	Southbound	636	20	644	16	597	16	-47	0	-7%	-2%
A400 Camden Street (south of Camden Gardens)	Southbound	763	16	721	11	717	11	-3	0	0%	-2%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	474	17	469	13	460	11	-9	-2	-2%	-12%
	Southbound	241	1	237	1	235	1	-2	0	-1%	11%
Hawley Road	Northbound	1,074	20	1,054	17	1,136	17	82	0	8%	-1%
A502 Chalk Farm Road (west of Hawley Street)	Northbound	221	11	229	11	238	12	9	1	4%	11%
	Southbound	746	16	704	14	787	14	83	1	12%	5%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Primrose Hill Road (south of Adelaide Road)	Northbound	382	6	408	6	414	5	6	0	1%	-4%
	Southbound	370	6	381	6	352	6	-29	0	-8%	-3%
Avenue Road (south of B509 Adelaide Road)	Northbound	508	4	499	5	505	5	6	0	1%	5%
	Southbound	639	7	627	6	621	12	-7	7	-1%	118%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	724	40	768	43	812	55	44	12	6%	27%
	Southbound	507	32	529	33	532	38	3	5	1%	15%
Loudoun Road (south of Alexandra Place)	Northbound	425	6	408	5	400	5	-8	0	-2%	-2%
	Southbound	392	5	424	6	440	6	16	0	4%	3%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	538	9	537	9	508	9	-29	0	-5%	-2%
	Southbound	313	4	352	4	349	4	-3	0	-1%	-1%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	576	16	563	15	581	15	17	0	3%	1%
	Southbound	499	8	481	8	486	8	6	0	1%	0%

Table 6-63: Links with traffic increase, Scenario 1 AM Peak

Location	CFA	Direction	2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
Albert Terrace	CFA2	Northbound	359	6	445	9	85	2	24%	41%
Arlington Road (north of Mornington Crescent)	CFA1 & 2	Northbound	41	0	44	0	3	0	6%	-30%
	CFA1 & 2	Southbound	157	4	37	1	-121	-3	-77%	-72%
Castle Road (east of Castlehaven Road)	CFA1	Westbound	189	8	197	8	8	1	4%	11%
	CFA1	Eastbound	87	2	123	2	36	0	41%	11%
Chalton Street (north of Euston Road)	CFA1	Northbound	100	5	366	6	266	1	267%	17%
	CFA1	Southbound	77	2	131	3	54	1	70%	43%
Churchway (north of Euston Road)	CFA1	Northbound	18	0	87	10	69	10	384%	
	CFA1	Southbound	91	2	104	5	13	3	14%	163%
Drummond Street (west of Hampstead Road)	CFA1	Westbound	185	11	289	14	104	3	56%	27%
	CFA1	Eastbound	19	2	97	6	78	3	406%	135%
A501 Euston Road (slip road from North Gower Street)	CFA1	Eastbound	226	7	256	9	30	2	13%	25%
A4200 Eversholt Street (north of Polygon Road)	CFA1	Northbound	255	10	653	36	398	26	156%	256%
	CFA1	Southbound	99	8	212	7	114	-1	115%	-9%
A400 Gower Street (south of Euston Road)		Southbound	128	3	186	4	58	1	45%	35%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
Grafton Way (west of Gower Street)	CFA1	Westbound	151	5	204	5	53	0	35%	9%
Greenland Road (east of Camden High Street)	CFA2	Eastbound	145	6	309	10	163	4	112%	59%
B506 Great Portland Street (south of Langham Street)	CFA1	Northbound	62	3	63	3	1	0	1%	0%
	CFA1	Southbound	160	10	108	9	-52	-1	-33%	-6%
Hallam Street (north of Langham Street)	CFA1	Northbound	62	3	63	3	1	0	1%	0%
B504 Judd Street (south of Cromer Street)	CFA1	Northbound	172	19	237	22	64	2	37%	11%
	CFA1	Southbound	379	27	380	28	0	1	0%	4%
Longford Street (west of Stanhope Street)	CFA1	Westbound	92	2	84	6	-8	4	-9%	160%
	CFA1	Eastbound	71	4	80	7	8	3	12%	71%
A404 Harrow Road (north of Edgware Road)	CFA1	Eastbound	305	24	263	35	-42	11	-14%	43%
Mornington Crescent (between Clarkson Row and Hampstead Road)	CFA1	Northbound	66	5	29	0	-37	-5	-56%	-94%
	CFA1	Southbound	5	0	6	0	1	0	26%	-8%
North Gower Street (south of Euston Street)	CFA1	Northbound	23	3	0	0	-23	-3	-100%	-100%
	CFA1	Southbound	10	0	47	2	36	1	350%	240%
Outer Circle (south of Chester Road)	CFA1	Northbound	256	0	293	0	37	0	14%	
	CFA1	Southbound	201	0	271	0	70	0	35%	

Location	CFA	Direction	2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
Park Square West (between Outer Circle and Marylebone Road)	CFA1	Northbound	158	0	201	0	43	0	27%	
	CFA1	Southbound	78	0	135	0	57	0	73%	
Polygon Road (east of Eversholt Street)	CFA1	Westbound	60	3	316	4	256	1	425%	30%
	CFA1	Eastbound	52	1	99	3	46	1	89%	73%
Regents Park Road (between Princess Road and Gloucester Road)	CFA2	Westbound	327	18	403	21	76	3	23%	17%
	CFA2	Eastbound	140	3	167	5	27	2	19%	58%
Robert Street (east of Stanhope Street)	CFA1	Westbound	333	8	196	24	-137	15	-41%	187%
	CFA1	Eastbound	61	1	64	19	3	18	5%	1489%
A5205 St. John's Wood Road (east of Lisson Grove)	CFA1	Westbound	443	20	436	29	-8	10	-2%	48%
	CFA1	Eastbound	487	9	459	19	-28	10	-6%	104%
Stanhope Street (south of Granby Terrace)	CFA1	Northbound	8	0	21	1	13	0	166%	75%
	CFA1	Southbound	67	1	14	1	-53	0	-79%	59%
Tavistock Place (west of Marchmont Street)	CFA1	Westbound	82	2	134	4	53	2	64%	96%
	CFA1	Eastbound	48	2	84	3	36	2	75%	85%
Torrington Place (west of Gower Street)	CFA1	Westbound	106	5	210	13	105	8	99%	165%

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Table 6-64: Links with traffic increase, Scenario 1 AM Peak

Location	CFA	Direction	2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
Albert Terrace	CFA2	Northbound	384	2	522	3	138	1	36%	42%
Arlington Road (north of Mornington Crescent)	CFA1 & 2	Northbound	54	0	108	1	54	0	101%	71%
	CFA1 & 2	Southbound	162	3	17	0	-144	-2	-89%	-96%
Castle Road (east of Castlehaven Road)	CFA1	Eastbound	251	3	277	3	26	0	10%	2%
	CFA1	Westbound	27	1	40	1	13	0	48%	3%
Chalton Street (north of Euston Road)	CFA1	Northbound	97	2	214	2	117	1	121%	53%
	CFA1	Southbound	16	1	116	1	100	0	627%	27%
Churchway (north of Euston Road)	CFA1	Northbound	18	0	15	5	-3	5	-17%	
	CFA1	Southbound	86	0	88	3	2	3	2%	
Drummond Street (west of Hampstead Road)	CFA1	Westbound	100	2	185	4	85	2	85%	86%
	CFA1	Eastbound	40	0	87	0	47	0	117%	46%
A501 Euston Road (slip road from North Gower Street)	CFA1	Eastbound	232	2	403	3	171	1	74%	73%
A4200 Eversholt Street (north of Polygon Road)	CFA1	Northbound	246	3	454	7	208	4	85%	157%
	CFA1	Southbound	200	2	504	2	304	0	152%	-8%
A400 Gower Street (south of Euston Road)		Southbound	84	2	179	4	95	1	113%	62%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
Grafton Way (west of Gower Street)	CFA1	Westbound	214	3	344	4	130	1	61%	42%
Greenland Road (east of Camden High Street)	CFA2	Eastbound	188	1	296	5	108	4	58%	449%
B506 Great Portland Street (south of Langham Street)	CFA1	Northbound	83	0	92	0	9	0	10%	300%
	CFA1	Southbound	178	2	93	1	-85	0	-48%	-11%
Hallam Street (north of Langham Street)	CFA1	Northbound	83	0	92	0	9	0	10%	300%
B504 Judd Street (west of Cromer Street)	CFA1	Northbound	200	3	277	4	77	1	38%	40%
	CFA1	Southbound	398	6	373	5	-26	0	-6%	-6%
Longford Street (west of Stanhope Street)	CFA1	Eastbound	186	1	83	1	-103	0	-55%	-12%
	CFA1	Westbound	5	0	8	0	3	0	56%	32%
A404 Harrow Road (north of Edgware Road)	CFA1	Eastbound	29	2	22	13	-8	11	-26%	649%
Mornington Crescent (between Clarkson Row and Hampstead Road)	CFA1	Northbound	92	1	51	0	-41	-1	-44%	-76%
	CFA1	Southbound	5	0	8	0	3	0	72%	
North Gower Street (south of Euston Street)	CFA1	Northbound	28	1	0	0	-28	-1	-100%	-100%
	CFA1	Southbound	17	0	80	1	63	1	370%	277%
Outer Circle (south of Chester Road)	CFA1	Northbound	594	0	547	0	-46	0	-8%	
	CFA1	Southbound	209	0	224	0	15	0	7%	

Location	CFA	Direction	2021 baseline		2021 construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
Park Square West (between Outer Circle and Marylebone Road)	CFA1	Northbound	215	0	217	0	2	0	1%	
	CFA1	Southbound	0	0	0	0	0	0	225%	
Polygon Road (east of Eversholt Street)	CFA1	Westbound	78	1	148	2	70	1	90%	36%
	CFA1	Eastbound	57	1	102	1	46	0	80%	1%
Regents Park Road (between Princess Road and Gloucester Road)	CFA2	Westbound	443	5	489	4	46	0	10%	-4%
	CFA2	Eastbound	129	3	170	3	41	0	32%	12%
Robert Street (east of Stanhope Street)	CFA1	Westbound	346	3	99	18	-248	16	-71%	586%
	CFA1	Eastbound	44	1	52	20	7	18	17%	1274%
A5205 St. John's Wood Road (east of Lisson Grove)	CFA1	Westbound	483	3	480	14	-4	11	-1%	359%
	CFA1	Eastbound	443	5	389	16	-54	11	-12%	236%
Stanhope Street (south of Granby Terrace)	CFA1	Northbound	2	0	18	0	16	0	778%	45%
	CFA1	Southbound	21	0	14	1	-6	1	-31%	365%
Tavistock Place (west of Marchmont Street)	CFA1	Westbound	84	1	44	1	-40	0	-47%	-17%
	CFA1	Eastbound	209	2	200	2	-10	0	-5%	12%
Torrington Place (west of Gower Street)	CFA1	Westbound	123	1	198	2	75	0	61%	30%

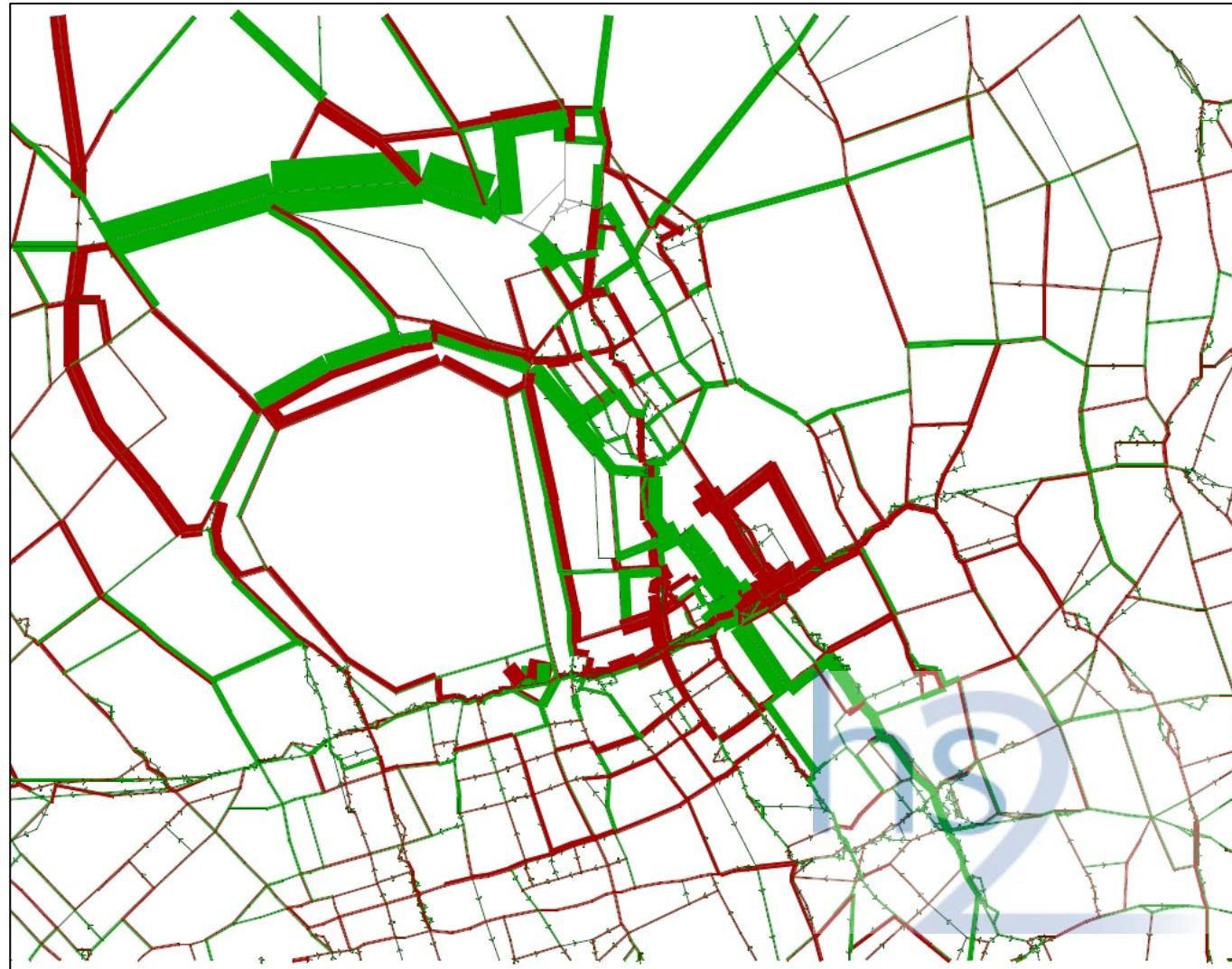
## Highway impacts - Scenario 2, 2019

- 6.4.211 Scenario 2 reflects the peak of construction vehicles together with a number of utility works and the main works around the station. In addition, highway interventions in the Camden area associated with the HS2 to HS1 link, namely the Adelaide Road closure and HS1 Link works at Chalk Farm Road, are included. The highway interventions in the Camden area result in diversions to general traffic.
- 6.4.212 The diversion impacts for the AM and PM peak hours are illustrated in Figure 6-78 and Figure 6-79 respectively, and described as follows:
- flow reductions on A4201 Albany Street, Park Village East, Mornington Street, Granby Terrace, Varndell Street, Robert Street and A400 Hampstead Road (north of Cardington Street), due to road closures and highway interventions;
  - flow reductions south of A501 Euston Road on Gordon Street and Gordon Square as a result of the Gordon Street closure;
  - removal of traffic from those roads closed as part of the station works;
  - flow reductions on Adelaide Road, Chalk Farm Road, Harmood Street and Prince of Wales Road, due to the Camden Town to HS1 Link area interventions;
  - increase in flow on the A41 Finchley Road, Outer Circle and A4201 Albany Street (and wider network redistribution including College Crescent). This is an alternative north to south route to Adelaide Road and Chalk Farm Road with the A41 Finchley Road used as a construction vehicle route;
  - increase in flow on A5 Edgware Road, A5205 St. Johns Wood Road and A41 Wellington Road/Finchley Road, resulting from construction vehicle flows from Euston station compounds to the north of London;
  - increase in traffic on A4200 Eversholt Street, Polygon Road and Chalton Street which is an alternative north to south route to A400 Hampstead Road and Cardington Street;
  - increase in traffic on A4200 Eversholt Street due to the relocation of the taxi facility from its existing location;
  - increase in traffic on A400 Hampstead Road (south of Cardington Street) which is an alternative northbound and southbound route to Cardington Street;
  - increase in traffic on A4201 Albany Street/Outer Circle in the southbound direction, used as an alternative to Park Village East (during the AM and PM peak periods);
  - increase in traffic on Pancras Way, Goods Way and A5200 York Way as an alternative northbound route; and

- increase in traffic on Camden Street, Crowndale Road and Midland Road as an alternative southbound route to A4200 Eversholt Street (during the IP period).

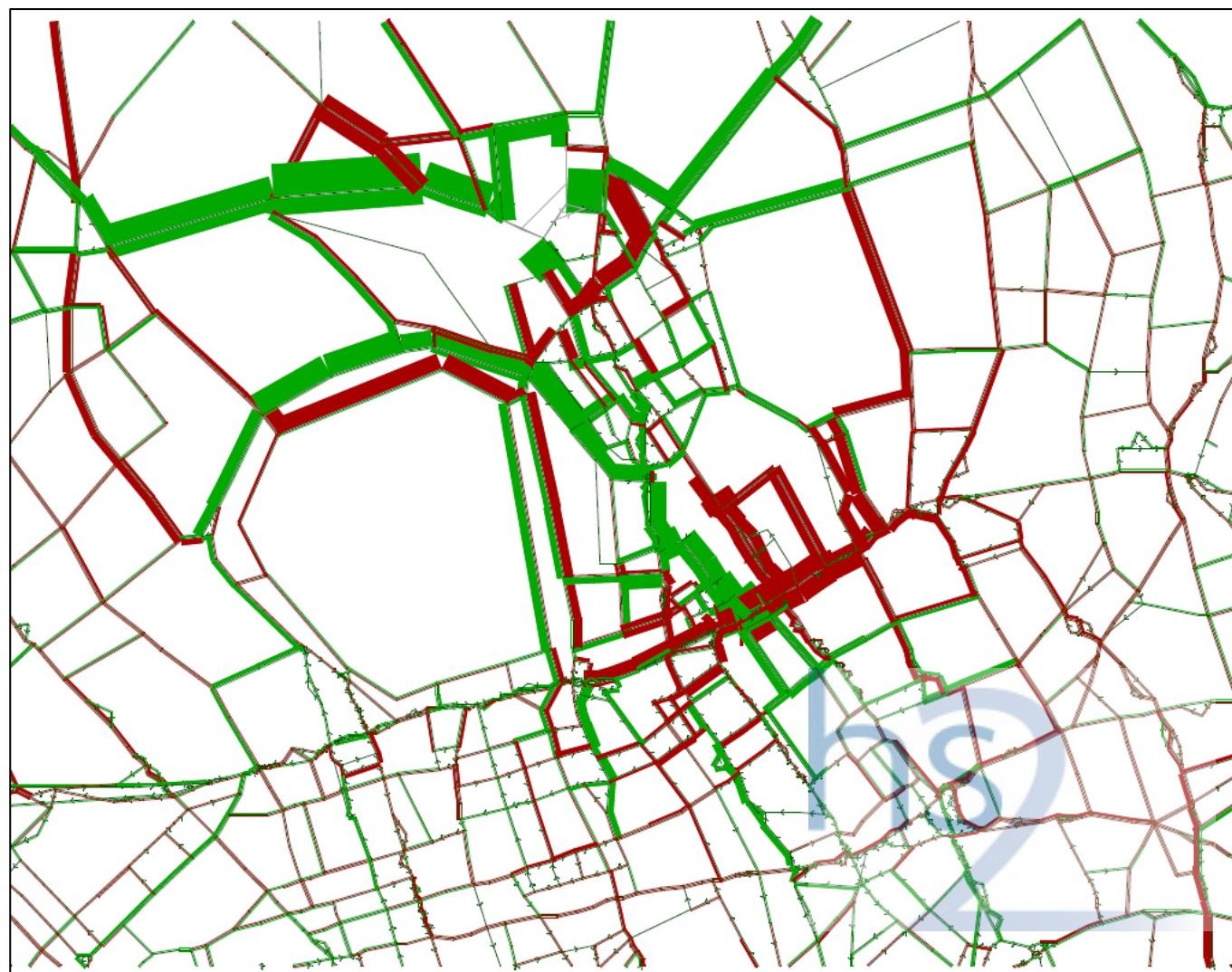
6.4.213 The pattern of flow changes is similar for the AM and PM peak hours. The average inter-peak hour also shows a similar pattern, but will lower levels of traffic flow change.

Figure 6-78: AM peak hour (08:00-09:00) traffic flow impacts - Scenario 2 vs 2021 future baseline (pcus)



*Note: Green bands refer to decreasing traffic flows and red bands refer to increasing traffic flows*

Figure 6-79: PM peak hour (17:00-18:00) traffic flow impacts - Scenario 2 vs 2021 future baseline (pcus)



Note: Green bands refer to decreasing traffic flows and red bands refer to increasing traffic flows

- 6.4.214 For Scenario 2, increases in the daily traffic flows are expected on a number of roads in the vicinity of Euston station, due to construction vehicles accessing worksites and highway interventions. Increases in traffic are a result of construction traffic, which will be additional movements in the area, as well as the general traffic flow that has been diverted from their normal route.
- 6.4.215 For the screenlines north and south of Euston Road, shown in Table 6-65 and Table 6-66 for the AM and PM peak hours respectively, the largest increases are in the northbound direction north of Euston Road with traffic increasing by 20% in the AM peak hour and 10% in the PM peak. Roads with the largest absolute flow increases are A400 Hampstead Road, A4200 Eversholt Street and Chalton Street. Northbound HGV movements increase by 45% and 85% for the AM and PM respectively, associated with higher construction flows than for Scenario 1. South of Euston Road, flows across the screenline either increase or decrease slightly, although there are increases on Tottenham Court Road, Gower Street and Upper Woburn Place associated primarily with the closure of Gordon Street. Flows on Euston Road increase most in the eastbound direction, between 7% and 25% in the AM peak hour and by around 30% in the PM peak hour.

The closure of Adelaide Road and Chalk Farm Road in Scenario 2 results in a decrease in all vehicles of 16% northbound and 11% southbound in the AM peak hour and 10% northbound and 11% southbound, in the PM peak hour. There is a small percentage decrease in HGVs in the AM peak hour and a small increase in the PM peak hour, but the absolute changes in HGV flows are small. As shown in Table 6-67 and

- 6.4.216 Table 6-68, the majority of the flow reductions are on Hawley Road and Chalk Farm Road, both of which are closed, with corresponding increases on A41 Finchley Road (partly due to construction vehicles) and A400 Kentish Town Road.
- 6.4.217 Those roads identified as having substantial increases in daily traffic are reported in Table 6-69 and Table 6-70, for Scenario 2. This indicates that those roads with the largest increases in HGVs, in both absolute and percentage terms, are roads used by construction traffic including Robert Street, A4200 Eversholt Street, A400 Hampstead Road, A41 Finchley Road, A41 Wellington Road and A5205 St Johns Wood Road. The larger number of roads impacted reflects the higher number of HGVs on the road network in Scenario 2. For all vehicles, the largest increases are on A4200 Eversholt Street, A400 Hampstead Road and the A502 Haverstock Hill.
- 6.4.218 A number of roads also experience a decrease in general traffic, in Scenario 2, across both peak hours, namely, B506 Great Portland Street southbound, Mornington Crescent northbound, Robert Street westbound (despite an increase in HGV flows), A4201 Parkway northbound and Primrose Hill Road northbound.

Table 6-65: 2021 construction Scenario 2, Euston screenlines AM Peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
<b>North of Euston Road</b>											
Outer Circle (between Park Square East and Chester Road)	Northbound	268	0	256	0	226	0	-31	0	-12%	
	Southbound	190	0	201	0	211	0	10	0	5%	
A4201 Albany Street (between Robert Street and Longford Street)	Northbound	308	26	249	48	228	12	-44	-12	-16%	-50%
	Southbound	276	16	277	33	440	23	146	7	50%	42%
Stanhope Street (between Longford Street and Robert Street)	Northbound	64	3	94	8	97	5	0	1	0%	24%
	Southbound	315	6	310	13	130	4	-187	-3	-59%	-42%
A400 Hampstead Road (between Drummond Street and Robert Street)	Northbound	321	19	291	34	489	48	181	31	59%	181%
	Southbound	656	47	477	81	631	65	114	24	22%	60%
Cardington Street (north of Drummond Street)	Northbound	117	4	117	8	0	0	-121	-4	-100%	-100%
	Southbound	277	11	289	21	0	0	-299	-10	-100%	-100%
New Cobourg Street (north of Starcross Street)	Northbound	-	-	-	-	-	-	-	-	-	-
	Southbound	-	-	-	-	-	-	-	-	-	-
A4200 Eversholt St (between Phoenix Road and Polygon Road)	Northbound	225	13	252	29	472	44	205	30	77%	205%
	Southbound	277	15	282	43	407	15	104	-6	34%	-29%
Chalton Street (between Euston Road and Phoenix Road)	Northbound	66	3	95	10	316	6	216	1	217%	30%
	Southbound	50	2	75	5	114	3	36	1	47%	51%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Midland Road (between Brill Place and Euston Road)	Southbound	577	25	571	57	637	28	38	-1	6%	-2%
A5202 Pancras Road (between Euston Road and Goods Way)	Northbound	243	10	298	21	351	11	43	0	14%	3%
	Southbound	214	10	216	20	237	10	10	0	5%	2%
A5203 York Way (between Euston Road and Caledonia Street)	Northbound	559	28	526	59	595	30	40	1	7%	2%
<b>South of Euston Road</b>											
A4201 Portland Place (between Devonshire Street and Park Crescent)	Northbound	273	5	286	9	231	5	-59	1	-20%	12%
	Southbound	421	14	388	24	397	12	-4	0	-1%	-1%
B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street)	Southbound	258	13	234	25	190	10	-57	-3	-23%	-22%
Cleveland Street (between Greenwell Street and Clipstone Street)	Southbound	170	7	250	16	209	7	-49	0	-19%	-4%
A400 Tottenham Court Road (between Grafton Way and Warren Street)	Southbound	876	68	745	115	953	64	151	6	19%	11%
A400 Gower Street (between Grafton Way and Gower Place)	Southbound	711	27	524	45	645	26	98	3	18%	15%
Gordon Street (between Endsleigh Gardens and Euston Road)	Northbound	317	40	336	43	0	0	-358	-21	-100%	-100%
	Southbound	265	10	284	14	0	0	-291	-7	-100%	-100%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)	Northbound	353	15	380	83	440	45	18	3	4%	8%
	Southbound	608	18	638	48	714	21	52	-3	8%	-14%
B504 Judd Street (between Bidborough Street and Euston Road)	Northbound	166	18	172	31	229	17	42	1	22%	9%
	Southbound	494	24	432	50	409	19	-48	-6	-11%	-24%
A501 Gray's Inn Road (east of Birkenhead Street)	Northbound	1,704	86	1,680	174	1,878	93	112	6	6%	7%
<b>Euston Road</b>											
A501 Euston Road (between Euston Circus and Melton Street)	Eastbound	1,850	97	1763	201	2,002	110	138	10	7%	10%
	Westbound	1,666	114	1739	243	1,833	118	-28	-4	-2%	-3%
A501 Euston Road (between Melton Street and A4200 Upper Woburn Place)	Eastbound	1,630	82	1579	172	2,076	104	411	19	25%	22%
	Westbound	1,520	87	1475	222	1,828	114	242	2	15%	2%
A501 Euston Road (between A4200 Upper Woburn Place and Churchway)	Eastbound	1,334	74	1269	153	1,618	87	272	10	20%	13%
	Westbound	1,499	81	1461	158	1,738	87	199	8	13%	10%

Table 6-66: 2021 construction Scenario 2, Euston screenlines PM Peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
<b>North of Euston Road</b>											
Outer Circle (between Park Square East and Chester Road)	Northbound	561	0	594	0	450	0	-143	0	-24%	
	Southbound	216	0	209	0	219	0	10	0	5%	
A4201 Albany Street (between Robert Street and Longford Street)	Northbound	295	6	346	6	344	2	-5	-2	-1%	-49%
	Southbound	356	5	304	2	448	3	142	2	47%	140%
Stanhope Street (between Longford Street and Robert Street)	Northbound	27	1	54	1	70	1	16	1	29%	188%
	Southbound	317	5	168	3	52	0	-118	-1	-69%	-67%
A400 Hampstead Road (between Drummond Street and Robert Street)	Northbound	635	15	630	12	631	25	-5	19	-1%	316%
	Southbound	351	6	331	3	450	23	117	22	35%	1407%
Cardington Street (north of Drummond Street)	Northbound	192	2	162	2	0	0	-163	-1	-100%	-100%
	Southbound	254	5	296	8	0	0	-300	-4	-100%	-100%
New Cobourg Street (north of Starcross Street)	Northbound	-	-	-	-	-	-	-	-	-	-
	Southbound	-	-	-	-	-	-	-	-	-	-
A4200 Eversholt St (between Phoenix Road and Polygon Road)	Northbound	311	6	276	5	428	11	150	8	54%	348%
	Southbound	297	6	283	3	516	1	232	-1	82%	-32%
Chalton Street (between Euston Road and Phoenix Road)	Northbound	99	1	96	3	239	2	142	0	146%	3%
	Southbound	5	0	15	2	117	1	101	0	631%	5%
Midland Road (between Brill)	Southbound	547	7	742	24	967	10	214	-2	28%	-17%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Place and Euston Road)											
A5202 Pancras Road (between Euston Road and Goods Way)	Northbound	185	2	602	8	873	5	267	1	44%	28%
	Southbound	241	4	170	5	190	2	18	0	11%	2%
A5203 York Way (between Euston Road and Caledonia Street)	Northbound	801	18	618	28	683	14	51	0	8%	3%
<b>South of Euston Road</b>											
A4201 Portland Place (between Devonshire Street and Park Crescent)	Northbound	238	0	238	0	185	0	-53	0	-22%	5%
	Southbound	545	9	515	23	588	12	62	1	12%	6%
B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street)	Southbound	385	4	265	2	109	1	-157	0	-59%	-16%
Cleveland Street (between Greenwell Street and Clipstone Street)	Southbound	144	1	271	3	220	1	-53	0	-19%	-10%
A400 Tottenham Court Road (between Grafton Way and Warren Street)	Southbound	991	19	908	21	1,016	13	98	3	11%	27%
A400 Gower Street (between Grafton Way and Gower Place)	Southbound	566	4	360	11	540	8	174	3	47%	47%
Gordon Street (between Endsleigh Gardens and Euston Road)	Northbound	423	9	417	8	0	0	-421	-4	-100%	-100%
	Southbound	194	3	251	3	0	0	-253	-2	-100%	-100%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)	Northbound	327	6	376	6	617	5	237	2	63%	51%
	Southbound	540	7	624	13	783	7	153	0	24%	0%
B504 Judd Street (between Bidborough Street and Euston Road)	Northbound	145	2	113	2	176	3	62	1	55%	122%
	Southbound	288	7	292	8	318	4	22	0	7%	1%
A501 Gray's Inn Road (east of Birkenhead Street)	Northbound	1,630	29	1,694	49	1,898	34	179	10	10%	40%
<b>Euston Road</b>											
A501 Euston Road (between Euston Circus and Melton Street)	Eastbound	1,162	37	1,286	17	1,684	22	389	13	30%	161%
	Westbound	1,609	32	1,673	33	1,812	28	122	11	7%	69%
A501 Euston Road (between Melton Street and A4200 Upper Woburn Place)	Eastbound	1,378	36	1,518	15	1,934	16	409	8	27%	104%
	Westbound	1,372	29	1,279	29	1,827	24	534	9	41%	64%
A501 Euston Road (between A4200 Upper Woburn Place and Churchway)	Eastbound	1,133	33	1,214	12	1,602	16	381	10	31%	160%
	Westbound	1,408	26	1,277	32	1,624	24	331	8	26%	50%

Table 6-67: 2021 construction Scenario 2, Camden screenline AM Peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	321	10	338	11	325	12	-13	2	-4%	17%
	Southbound	728	43	756	44	742	45	-14	1	-2%	2%
A5200 York Way (north of Vale Road)	Northbound	280	38	293	40	320	40	27	0	9%	1%
	Southbound	573	38	600	39	615	38	16	-2	3%	-5%
A5202 St Pancras Way (north of Baynes Street)	Southbound	716	34	698	34	741	45	44	11	6%	33%
Randolph Street (East of Royal College Street)	Eastbound	92	2	123	2	223	3	100	0	81%	23%
Royal College Street (south of Camden Rd)	Northbound	351	25	341	26	316	41	-26	14	-8%	53%
A503 Camden Road (south of Royal College St)	Northbound	563	32	599	32	542	32	-57	0	-10%	0%
	Southbound	880	56	929	56	933	55	4	-1	0%	-2%
A400 Camden Street (south of Camden Gardens)	Southbound	1,203	65	1,244	65	1,118	51	-127	-14	-10%	-21%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	297	18	324	19	463	23	139	4	43%	22%
	Southbound	268	27	246	27	130	27	-117	-1	-47%	-2%
Hawley Road	Northbound	1,014	56	1,023	57	0	0	-1,023	-57	-100%	-100%
A502 Chalk Farm Road (west of Hawley Street)	Northbound	87	10	88	10	0	0	-88	-10	-100%	-100%
	Southbound	840	43	849	44	0	0	-849	-44	-100%	-100%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Primrose Hill Road (south of Adelaide Road)	Northbound	341	15	331	12	229	13	-102	0	-31%	2%
	Southbound	640	31	638	32	699	35	61	3	10%	10%
Avenue Road (south of B509 Adelaide Road)	Northbound	276	10	271	10	309	12	38	2	14%	20%
	Southbound	885	22	923	22	814	25	-109	3	-12%	14%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	618	52	660	55	725	81	65	27	10%	49%
	Southbound	841	65	806	66	981	93	175	28	22%	42%
Loudoun Road (south of Alexandra Place)	Northbound	542	10	529	8	536	10	8	1	1%	16%
	Southbound	314	11	328	12	283	10	-45	-1	-14%	-13%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	310	8	308	8	315	9	7	1	2%	16%
	Southbound	568	15	563	15	565	16	2	1	0%	3%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	558	30	572	29	554	29	-18	0	-3%	1%
	Southbound	252	35	272	33	271	33	0	1	0%	2%

Table 6-68: 2021 construction Scenario 2, Camden screenline PM Peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	459	5	482	5	518	5	36	0	7%	5%
	Southbound	484	4	514	5	499	5	-15	0	-3%	7%
A5200 York Way (north of Vale Road)	Northbound	405	20	475	17	628	17	153	0	32%	2%
	Southbound	366	10	392	10	432	10	40	0	10%	0%
A5202 St Pancras Way (north of Baynes Street)	Southbound	555	6	562	8	549	11	-13	3	-2%	44%
Randolph Street (East of Royal College Street)	Eastbound	242	1	244	1	231	3	-14	2	-6%	189%
Royal College Street (south of Camden Rd)	Northbound	485	10	477	12	545	17	68	5	14%	46%
A503 Camden Road (south of Royal College St)	Northbound	876	14	817	15	1,136	21	319	6	39%	36%
	Southbound	636	20	644	16	601	14	-43	-2	-7%	-11%
A400 Camden Street (south of Camden Gardens)	Southbound	763	16	721	11	705	9	-15	-2	-2%	-17%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	474	17	469	13	474	10	5	-2	1%	-18%
	Southbound	241	1	237	1	221	2	-17	1	-7%	61%
Hawley Road	Northbound	1,074	20	1,054	17	0	0	-1,054	-17	-100%	-100%
A502 Chalk Farm Road (west of Hawley Street)	Northbound	221	11	229	11	0	0	-229	-11	-100%	-100%
	Southbound	746	16	704	14	0	0	-704	-14	-100%	-100%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Primrose Hill Road (south of Adelaide Road)	Northbound	382	6	408	6	302	6	-106	0	-26%	-2%
	Southbound	370	6	381	6	417	8	36	2	10%	38%
Avenue Road (south of B509 Adelaide Road)	Northbound	508	4	499	5	526	5	27	0	5%	3%
	Southbound	639	7	627	6	652	2	24	-3	4%	-59%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	724	40	768	43	853	72	85	29	11%	67%
	Southbound	507	32	529	33	528	63	-1	30	0%	92%
Loudoun Road (south of Alexandra Place)	Northbound	425	6	408	5	383	6	-24	0	-6%	7%
	Southbound	392	5	424	6	422	6	-3	0	-1%	-8%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	538	9	537	9	543	9	6	0	1%	-2%
	Southbound	313	4	352	4	363	4	11	0	3%	-4%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	576	16	563	15	560	15	-3	0	-1%	-1%
	Southbound	499	8	481	8	483	8	3	0	1%	0%

Table 6-69: Links with traffic increase, Scenario 2 AM Peak

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
A4201 Albany Street (south of Longford Street)	CFA1	Northbound	273	24	228	12	-44	-12	-16%	-50%
	CFA1	Southbound	293	17	440	23	146	7	50%	42%
Arlington Road (north of Parkway)	CFA1 & 2	Northbound	20	0	18	0	-2	0	-9%	-33%
	CFA1 & 2	Southbound	88	4	166	15	78	10	90%	235%
B525 Avenue Road (between Prince Albert Road and Outer Circle)	CFA1 & 3	Northbound	158	1	187	1	29	0	19%	-1%
	CFA1 & 3	Southbound	475	1	699	1	224	0	47%	-1%
Bishops Bridge Road (east of Eastbourne Terrace)	CFA1	Southbound	140	5	141	20	1	15	0%	304%
Camden Gardens (east of Kentish Town Road)	CFA2	Westbound	0	0	0	0	0	0		
	CFA2	Eastbound	0	0	31	0	31	0		
Castle Road (east of Castlehaven Road)	CFA2	Westbound	189	8	140	16	-49	8	-26%	107%
	CFA2	Eastbound	87	2	13	0	-74	-1	-85%	-83%
Castlehaven Road (south of Castle Road)	CFA2	Northbound	208	19	429	26	222	7	107%	36%
	CFA2	Southbound	190	10	51	1	-139	-9	-73%	-94%
A502 Chalk Farm Road (north of Harwood Street)	CFA2 & 3	Westbound	88	10	263	20	175	10	200%	95%
	CFA2 & 3	Eastbound	849	44	320	32	-530	-12	-62%	-27%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
Chalton Street (north of Euston Road)	CFA1	Northbound	100	5	316	6	216	1	217%	30%
	CFA1	Southbound	77	2	114	3	36	1	47%	51%
Churchway (north of Euston Road)	CFA1	Northbound	18	0	115	12	97	12	540%	
	CFA1	Southbound	91	2	111	4	20	2	22%	132%
Drummond Street (west of Hampstead Road)	CFA1	Westbound	185	11	360	15	174	4	94%	35%
	CFA1	Eastbound	19	2	105	6	86	3	446%	143%
A501 Euston Road (slip road from North Gower Street)	CFA1	Eastbound	226	7	256	8	30	1	13%	19%
A4200 Eversholt Street (north of Polygon Road)	CFA1	Northbound	255	10	666	38	411	28	161%	272%
	CFA1	Southbound	99	8	233	6	135	-2	136%	-21%
Farrier Street (east of Kentish Town Road)	CFA2	Northbound	15	0	102	0	88	0	594%	
	CFA2	Southbound	295	3	316	1	21	-2	7%	-63%
Ferdinand Street (north of Chalk Farm Road)	CFA3	Northbound	79	3	112	3	32	0	40%	5%
	CFA3	Southbound	94	1	46	1	-48	0	-51%	-14%
A41 Finchley Road (north of Circus Road)	CFA3	Northbound	600	46	668	73	68	28	11%	61%
	CFA3	Southbound	786	61	917	89	131	28	17%	45%
Gloucester Avenue (east of Parkway)	CFA3	Northbound	531	24	639	30	108	6	20%	25%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
	CFA3	Southbound	74	2	169	11	95	9	128%	364%
A400 Gower Street (south of Euston Road)	CFA1	Southbound	128	3	196	4	68	1	54%	26%
Grafton Way (west of Gower Street)	CFA1	Westbound	151	5	191	5	40	0	26%	3%
B506 Great Portland Street (south of Langham Street)	CFA1	Northbound	62	3	63	3	1	0	1%	1%
	CFA1	Southbound	160	10	115	8	-45	-2	-28%	-18%
Greenland Road (east of Camden High Street)	CFA2	Eastbound	145	6	301	11	156	5	107%	82%
Hallam Street (north of Langham Street)	CFA1	Northbound	62	3	63	3	1	0	1%	1%
A400 Hampstead Road (south of Drummond Street)	CFA1	Northbound	450	26	682	57	232	31	52%	122%
	CFA1	Southbound	519	41	569	64	49	23	9%	57%
A502 Haverstock Hill (north of Prince of Wales Road)	CFA3	Northbound	225	10	424	17	200	6	89%	58%
	CFA3	Southbound	295	24	338	26	42	2	14%	9%
B504 Judd Street (south of Cromer Street)	CFA1	Northbound	172	19	234	23	62	3	36%	16%
	CFA1	Southbound	379	27	377	23	-2	-3	-1%	-12%
A400 Kentish Town Road (north of Camden Gardens)	CFA2	Northbound	324	19	463	23	139	4	43%	22%
	CFA2	Southbound	246	27	161	27	-86	-1	-35%	-2%
Longford Street (west of Stanhope Street)	CFA1	Westbound	92	2	124	5	33	3	35%	117%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
			CFA1	Eastbound	71	4	80	8	8	3
A404 Harrow Road (north of Edgware Road)	CFA1	Westbound	42	5	52	17	10	11	25%	207%
	CFA1	Eastbound	305	24	304	35	-1	11	0%	46%
Mornington Crescent (between Clarkson Row and Mornington Place)	CFA1	Northbound	66	5	31	0	-35	-4	-53%	-93%
	CFA1	Southbound	5	0	8	0	3	0	53%	0%
North Gower Street (south of Euston Street)	CFA1	Northbound	23	3	0	0	-23	-3	-100%	-100%
	CFA1	Southbound	10	0	48	2	38	1	362%	237%
Osnaburgh Street (south of Triton Street)	CFA1	Southbound	459	27	555	43	96	15	21%	56%
Outer Circle (north of Gloucester Gate)	CFA1	Northbound	210	0	213	0	2	0	1%	
	CFA1	Southbound	418	0	598	0	180	0	43%	
Oval Road (south of Jamestown Road)	CFA2	Northbound	219	5	224	6	5	1	2%	25%
	CFA2	Southbound	0	0	56	0	56	0	556300%	
A5202 Pancras Road (south of Goods Way)	CFA1	Northbound	292	20	322	20	30	0	10%	0%
	CFA1	Southbound	12	0	10	0	-2	0	-14%	
A4201 Parkway (west of Park Village East)	CFA1 & 3	Northbound	599	20	653	9	54	-12	9%	-58%
	CFA1 & 3	Southbound	499	17	636	26	137	9	28%	51%
Polygon Road (east of Eversholt Street)	CFA1	Westbound	60	3	266	4	206	2	341%	55%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
	CFA1	Eastbound	52	1	88	3	36	1	69%	85%
Primrose Hill Road (south of Adelaide Road)	CFA3	Northbound	331	12	229	13	-102	0	-31%	2%
	CFA3	Southbound	638	32	699	35	61	3	10%	10%
Primrose Hill Road/Englands Lane (north of Adelaide Road)	CFA3	Northbound	109	2	110	2	0	1	0%	34%
	CFA3	Southbound	625	29	670	30	46	1	7%	3%
Prince of Wales Road (west of Castlehaven Road)	CFA3	Northbound	482	24	149	12	-333	-11	-69%	-48%
	CFA3	Southbound	75	2	256	6	181	4	241%	223%
Regents Park Road (between Princess Road and Gloucester Road)	CFA3	Westbound	327	18	439	24	112	6	34%	36%
	CFA3	Eastbound	140	3	177	14	36	11	26%	335%
Robert Street (east of Stanhope Street)	CFA1	Westbound	333	8	156	22	-177	13	-53%	162%
	CFA1	Eastbound	61	1	67	19	6	18	10%	1490%
Rosslyn Hill (north of Pond Street)	CFA3	Northbound	218	15	336	17	117	2	54%	13%
	CFA3	Southbound	610	30	694	30	84	0	14%	0%
Rousden Street (south of Camden Road)	CFA2	Northbound	71	0	173	0	102	0	143%	
	CFA2	Southbound	20	0	20	0	1	0	3%	1%
Royal College Street (north of Camden Road)	CFA1	Northbound	248	14	321	27	73	13	29%	94%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
St. John's Wood Park (south of Boundary Park Road)	CFA3	Northbound	48	3	85	4	37	1	77%	27%
	CFA3	Southbound	200	5	279	5	79	0	40%	7%
A5205 St. John's Wood Road (east of Lisson Grove)	CFA3	Westbound	443	20	420	45	-23	25	-5%	126%
	CFA3	Eastbound	487	9	468	20	-19	10	-4%	111%
A5202 St. Pancras Way (south of Agar Grove)	CFA2	Southbound	454	21	517	30	63	9	14%	45%
Stanhope Street (south of Granby Terrace)	CFA1	Northbound	8	0	20	1	13	0	161%	72%
	CFA1	Southbound	67	1	14	1	-53	0	-79%	59%
Tavistock Place (west of Marchmont Street)	CFA1	Westbound	82	2	134	5	52	3	63%	123%
	CFA1	Eastbound	48	2	97	4	49	2	103%	126%
Torrington Place (west of Gower Street)	CFA1	Westbound	106	5	222	13	117	8	110%	167%
A41 Wellington Road (south of Circus Road)	CFA3	Northbound	417	37	476	65	59	28	14%	75%
	CFA3	Southbound	735	55	880	84	146	29	20%	52%

Table 6-70: Links with traffic increase, Scenario 2 PM Peak

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
A4201 Albany Street (south of Longford Street)	CFA1	Northbound	350	3	344	2	-5	-2	-1%	-49%
	CFA1	Southbound	306	1	448	3	142	2	47%	140%
Arlington Road (north of Parkway)	CFA1 & 2	Northbound	17	0	29	0	12	0	67%	4%
	CFA1 & 2	Southbound	134	2	293	4	159	2	119%	129%
B525 Avenue Road (between Prince Albert Road and Outer Circle)	CFA1 & 3	Northbound	494	0	501	0	7	0	1%	0%
	CFA1 & 3	Southbound	496	0	777	0	281	0	57%	0%
Bishops Bridge Road (east of Eastbourne Terrace)	CFA1	Southbound	120	1	118	17	-2	16	-2%	1474%
Camden Gardens (east of Kentish Town Road)	CFA2	Westbound	0	0	0	0	0	0		
	CFA2	Eastbound	0	0	31	0	31	0		
Castle Road (east of Castlehaven Road)	CFA2	Westbound	251	3	300	6	49	3	19%	86%
	CFA2	Eastbound	27	1	32	0	4	-1	16%	-92%
Castlehaven Road (south of Castle Road)	CFA2	Northbound	191	3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	CFA2	Southbound	236	3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A502 Chalk Farm Road (north of Harwood Street)	CFA2 & 3	Westbound	229	11	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	CFA2 & 3	Eastbound	704	14	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
Chalton Street (north of Euston Road)	CFA1	Northbound	97	2	239	2	142	0	146%	3%
	CFA1	Southbound	16	1	117	1	101	0	631%	5%
Churchway (north of Euston Road)	CFA1	Northbound	18	0	29	7	11	7	60%	
	CFA1	Southbound	86	0	89	3	3	3	3%	15075%
Drummond Street (west of Hampstead Road)	CFA1	Westbound	100	2	207	4	108	2	108%	83%
	CFA1	Eastbound	40	0	132	1	92	0	229%	75%
A501 Euston Road (slip road from North Gower Street)	CFA1	Eastbound	232	2	421	3	189	1	81%	72%
A4200 Eversholt Street (north of Polygon Road)	CFA1	Northbound	246	3	501	8	255	5	104%	200%
	CFA1	Southbound	200	2	546	2	346	0	173%	-5%
Farrier Street (east of Kentish Town Road)	CFA2	Northbound	234	0	644	0	410	0	175%	700%
	CFA2	Southbound	560	7	307	4	-253	-4	-45%	-49%
Ferdinand Street (north of Chalk Farm Road)	CFA3	Northbound	109	7	159	1	51	-6	47%	-83%
	CFA3	Southbound	18	0	17	0	-1	0	-6%	-5%
A41 Finchley Road (north of Circus Road)	CFA3	Northbound	851	29	951	58	100	29	12%	100%
	CFA3	Southbound	457	28	443	58	-13	30	-3%	109%
Gloucester Avenue (east of Parkway)	CFA3	Northbound	560	5	632	5	72	0	13%	3%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
	CFA3	Southbound	58	1	319	12	262	11	455%	904%
A400 Gower Street (south of Euston Road)	CFA1	Southbound	84	2	222	4	138	1	164%	56%
Grafton Way (west of Gower Street)	CFA1	Westbound	214	3	392	4	178	1	84%	38%
B506 Great Portland Street (south of Langham Street)	CFA1	Northbound	83	0	92	0	9	0	10%	0%
	CFA1	Southbound	178	2	86	1	-92	0	-52%	-13%
Greenland Road (east of Camden High Street)	CFA2	Eastbound	188	1	271	5	83	4	44%	445%
Hallam Street (north of Langham Street)	CFA1	Northbound	83	0	92	0	9	0	10%	0%
A400 Hampstead Road (south of Drummond Street)	CFA1	Northbound	658	8	649	29	-9	21	-1%	272%
	CFA1	Southbound	334	2	418	23	84	21	25%	1222%
A502 Haverstock Hill (north of Prince of Wales Road)	CFA3	Northbound	190	4	434	7	243	3	128%	60%
	CFA3	Southbound	344	5	539	12	195	7	57%	154%
B504 Judd Street (south of Cromer Street)	CFA1	Northbound	200	3	289	5	89	2	45%	50%
	CFA1	Southbound	398	6	379	5	-20	0	-5%	-4%
A400 Kentish Town Road (north of Camden Gardens)	CFA2	Northbound	469	13	474	10	5	-2	1%	-18%
	CFA2	Southbound	237	1	252	2	15	1	6%	61%
Longford Street (west of Stanhope Street)	CFA1	Westbound	186	1	110	1	-76	0	-41%	-16%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
			CFA1	Eastbound	5	0	6	0	1	0
A404 Harrow Road (north of Edgware Road)	CFA1	Westbound	83	1	90	12	8	11	9%	788%
	CFA1	Eastbound	29	2	39	13	9	11	31%	651%
Mornington Crescent (between Clarkson Row and Mornington Place)	CFA1	Northbound	92	1	62	0	-30	-1	-33%	-77%
	CFA1	Southbound	5	0	8	0	3	0	74%	
North Gower Street (south of Euston Street)	CFA1	Northbound	28	1	0	0	-28	-1	-100%	-100%
	CFA1	Southbound	17	0	65	1	48	1	281%	262%
Osnaburgh Street (south of Triton Street)	CFA1	Southbound	1,069	6	1132	12	63	5	6%	82%
Outer Circle (north of Gloucester Gate)	CFA1	Northbound	287	0	287	0	-1	0	0%	
	CFA1	Southbound	257	0	556	0	298	0	116%	
Oval Road (south of Jamestown Road)	CFA2	Northbound	164	3	130	3	-35	-1	-21%	-23%
	CFA2	Southbound	13	0	169	3	156	3	1211%	
A5202 Pancras Road (south of Goods Way)	CFA1	Northbound	444	3	617	4	173	1	39%	32%
	CFA1	Southbound	89	0	40	0	-49	0	-55%	
A4201 Parkway (west of Park Village East)	CFA1 & 3	Northbound	725	7	592	5	-133	-1	-18%	-22%
	CFA1 & 3	Southbound	263	1	248	2	-14	1	-5%	117%
Polygon Road (east of Eversholt Street)	CFA1	Westbound	78	1	165	1	87	0	111%	-18%

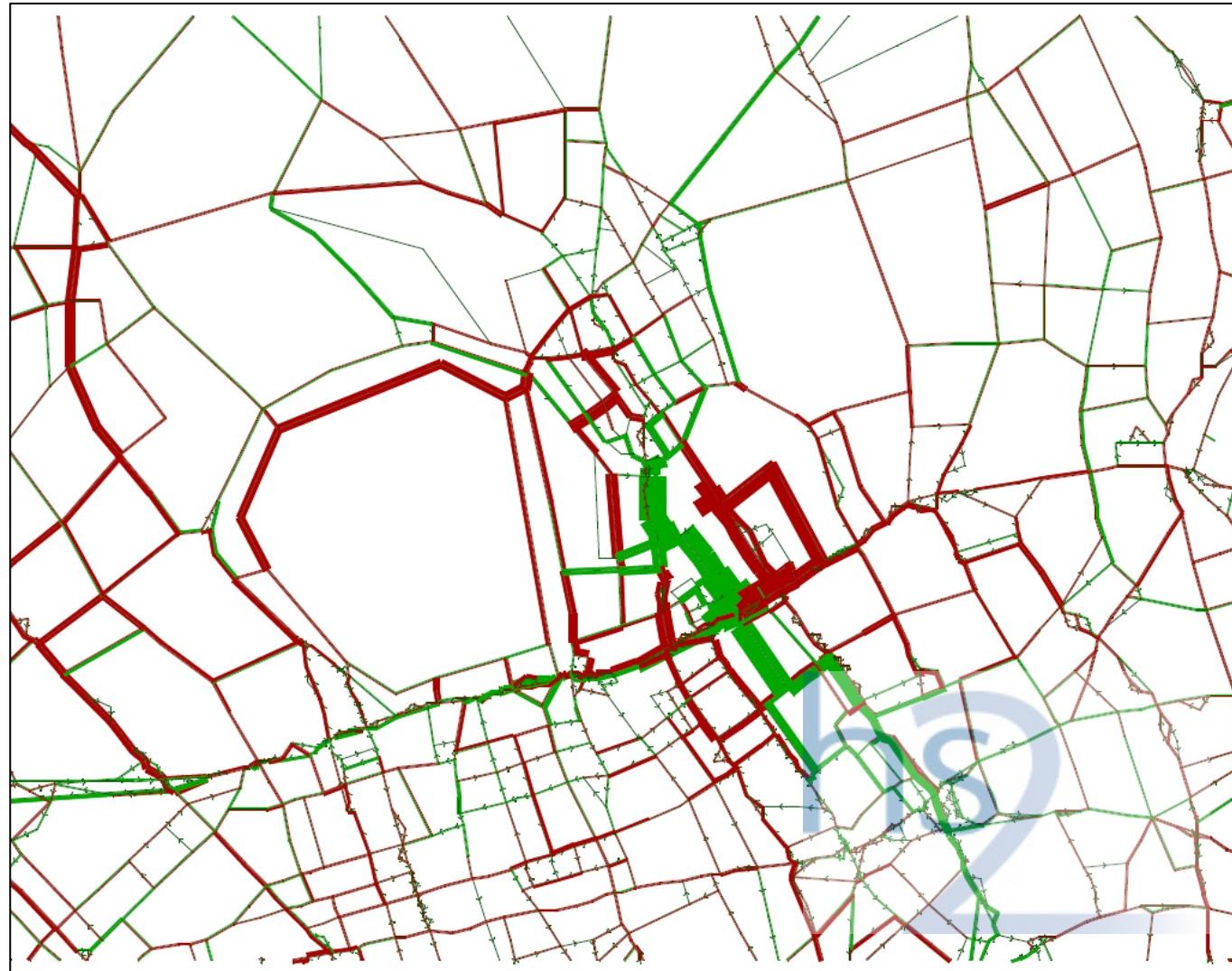
Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
	CFA1	Eastbound	57	1	95	1	38	0	68%	-4%
Primrose Hill Road (south of Adelaide Road)	CFA3	Northbound	408	6	302	6	-106	0	-26%	-2%
	CFA3	Southbound	381	6	417	8	36	2	10%	38%
Primrose Hill Road/Englands Lane (north of Adelaide Road)	CFA3	Northbound	110	2	141	5	31	3	29%	181%
	CFA3	Southbound	355	4	420	6	65	1	18%	26%
Prince of Wales Road (west of Castlehaven Road)	CFA3	Northbound	563	7	254	6	-309	-1	-55%	-13%
	CFA3	Southbound	128	2	94	3	-34	1	-27%	74%
Regents Park Road (between Princess Road and Gloucester Road)	CFA3	Westbound	443	5	490	4	47	0	11%	-2%
	CFA3	Eastbound	129	3	157	10	28	7	21%	225%
Robert Street (east of Stanhope Street)	CFA1	Westbound	346	3	68	18	-278	16	-80%	586%
	CFA1	Eastbound	44	1	60	20	15	18	35%	1278%
Rosslyn Hill (north of Pond Street)	CFA3	Northbound	462	9	516	10	54	1	12%	14%
	CFA3	Southbound	453	8	606	12	153	4	34%	44%
Rousden Street south of Camden Road)	CFA2	Northbound	86	0	154	2	68	2	79%	24800%
	CFA2	Southbound	0	0	0	0	0	0	-100%	
Royal College Street (north of Camden Road)	CFA1	Northbound	477	5	937	16	460	10	97%	197%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)	All vehicles incl. buses (veh)	HGV (veh)
St. John's Wood Park (south of Boundary Park Road)	CFA3	Northbound	85	1	60	1	-25	0	-29%	76%
	CFA3	Southbound	174	1	203	1	29	1	17%	84%
A5205 St. John's Wood Road (east of Lisson Grove)	CFA3	Westbound	483	3	464	30	-19	27	-4%	871%
	CFA3	Eastbound	443	5	428	16	-16	11	-4%	226%
A5202 St. Pancras Way (south of Agar Grove)	CFA2	Southbound	266	4	298	8	32	4	12%	94%
Stanhope Street (south of Granby Terrace)	CFA1	Northbound	2	0	18	0	16	0	775%	45%
	CFA1	Southbound	21	0	12	1	-8	1	-41%	365%
Tavistock Place (west of Marchmont Street)	CFA1	Westbound	84	1	43	1	-40	0	-48%	-16%
	CFA1	Eastbound	209	2	206	2	-3	0	-1%	17%
Torrington Place (west of Gower Street)	CFA1	Westbound	123	1	212	2	89	1	72%	39%
A41 Wellington Road (south of Circus Road)	CFA3	Northbound	593	23	687	51	95	28	16%	123%
	CFA3	Southbound	202	12	205	42	3	31	1%	265%

## Highway impacts - Scenario 3, 2021

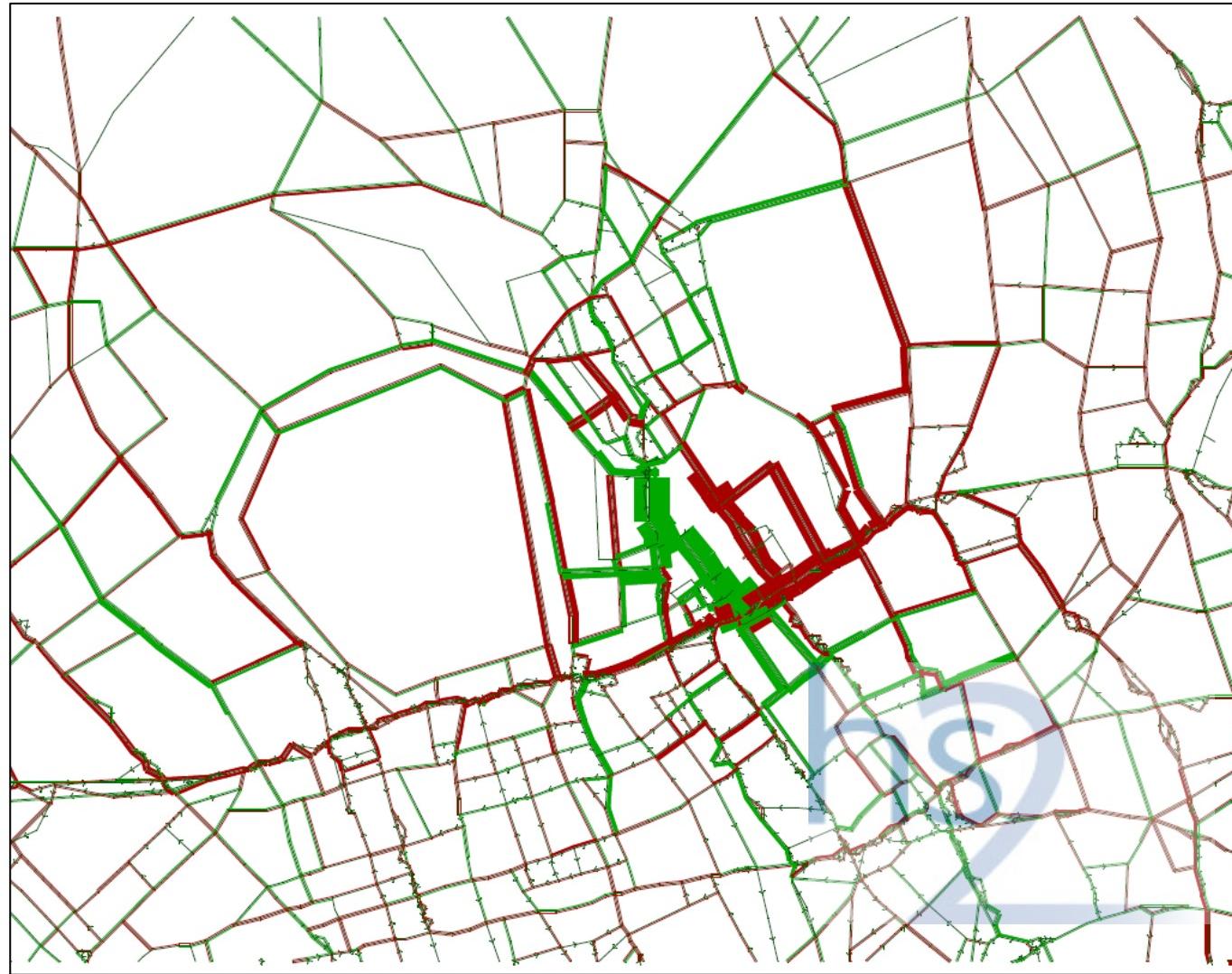
- 6.4.219 During this stage of construction, the majority of the enabling works on the highway will be complete. Around 90% of the maximum construction activity will be present during this stage.
- 6.4.220 The diversion impacts for the AM and PM peak hours are illustrated in Figure 6-80 and Figure 6-81 respectively, and described as follows:
- flow reductions on Varndell Street, Robert Street and A400 Hampstead Road (north of Cardington Street) due to road closures and highway interventions;
  - flow reductions south of A501 Euston Road on Gordon Street, Gordon Square and A4200 Upper Woburn Place (southbound) as a result of the Gordon Street closure;
  - removal of traffic from those roads closed as part of the station works;
  - increase in traffic on A4200 Eversholt Street, Polygon Road and Chalton Street, which is an alternative north to south route to A400 Hampstead Road and Cardington Street;
  - increase in traffic on A400 Hampstead Road (south of Cardington Street), which is an alternative northbound and southbound route to Cardington Street;
  - increase in traffic on Camden Street, Crowndale Road and Midland Road, as an alternative southbound route to A4200 Eversholt Street;
  - increase in traffic on Midland Road/Pancras Way, Goods Way, A5200 York Way which is an alternative north to south route to and from Cardington Street/Melton Street; and
  - increase in traffic on A41 Finchley Road due to the increase in HGV movements resulting from construction vehicle flows from Euston station compounds to the north of London.
- 6.4.221 The pattern of flow changes is similar for the AM and PM peak hours. The average inter-peak hour also shows a similar pattern but with lower levels of traffic flow change. Due to the completion of the utility works and the smaller number of interventions associated with the main works, the level and scale of the flow changes is lower than in Scenarios 1 and 2.

Figure 6-80: AM peak hour (08:00-09:00) traffic flow impacts - Scenario 3 vs 2021 future baseline (pcus)



Note: Green bands refer to decreasing traffic flows and red bands refer to increasing traffic flows

Figure 6-81: PM peak hour (17:00-18:00) traffic flow impacts - Scenario 3 vs 2021 future baseline (pcus)



*Note: Green bands refer to decreasing traffic flows and red bands refer to increasing traffic flows*

- 6.4.222 In Scenario 3, increases in the daily traffic flows are expected on a number of roads in the vicinity of Euston station, due to construction vehicles accessing worksites and highway interventions; although these are reduced in scale compared to Scenarios 1 and 2.
- 6.4.223 For the screenlines north and south of Euston Road, the largest increases are in the northbound direction north of Euston Road, with traffic increasing by 19% in the AM peak hour and 8% in the PM peak hour. Roads with the largest absolute flow increases are A4200 Eversholt Street and Chalton Street. Northbound HGV movements increase by 55% and 140% for the AM and PM respectively. Flow changes on individual links are shown in Table 6-71 and Table 6-72 for the AM and PM peak hours respectively. South of Euston Road, total flows across the screenline either increase or decrease slightly although there are increases on Tottenham Court road, Gower Street and Upper Woburn Place, associated primarily with the closure of Gordon Street. Flows on Euston Road increase most in the eastbound direction, between 4% and 20% in the AM peak hour and by around 20% in the PM peak hour.
- 6.4.224 There is very little change between Scenario 3 and the baseline across the Camden screenline, as shown in Table 6-73 and Table 6-74, with a 0%-2% difference in all vehicles in both directions across the AM and PM peaks. However, there is an increase in HGVs of approximately 40 vehicles per hour in both directions during both time periods, almost all of which are the result of an increase on Finchley Road, which is due to the increase in HGV movements from Euston station compounds to the north of London.
- 6.4.225 Those roads identified as having a substantial increase in daily in Scenario 3 are reported in Table 6-75 and Table 6-76. This indicates that those roads with the largest increases in HGVs, in both absolute and percentage terms, are roads used by construction traffic, including A400 Hampstead Road, A41 Finchley Road, A41 Wellington Road, A404 Harrow Road and A5205 St Johns Wood Road. There are fewer roads impacted than in Scenario 2, reflecting the reduced construction activities. For all vehicles, the largest increases are on A4200 Eversholt Street, Mornington Street, Polygon Road and Chalton Street.
- 6.4.226 A number of roads also experience a decrease in general traffic in Scenario 3 across both peak hours, namely, North Gower Street northbound, Robert Street (westbound) (despite an increase in HGV flows) and A5205 St Johns Wood Road (eastbound).

Table 6-71: 2021 construction Scenario 3, Euston screenline AM peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
<b>North of Euston Road</b>											
Outer Circle (between Park Square East and Chester Road)	Northbound	268	0	256	0	296	0	40	0	16%	
	Southbound	190	0	201	0	212	0	11	0	5%	
A4201 Albany Street (between Robert Street and Longford Street)	Northbound	308	26	249	48	302	27	29	3	11%	11%
	Southbound	276	16	277	33	369	17	75	0	26%	2%
Stanhope Street (between Longford Street and Robert Street)	Northbound	64	3	94	8	93	4	-4	0	-4%	6%
	Southbound	315	6	310	13	368	10	51	3	16%	46%
A400 Hampstead Road (between Drummond Street and Robert Street)	Northbound	321	19	291	34	342	55	33	38	11%	219%
	Southbound	656	47	477	81	592	87	75	46	14%	114%
Cardington Street (north of Drummond Street)	Northbound	117	4	117	8	0	0	-121	-4	-100%	-100%
	Southbound	277	11	289	21	0	0	-299	-10	-100%	-100%
New Cobourg Street (north of Starcross Street)	Northbound	-	-	-	-	-	-	-	-	-	-
	Southbound	-	-	-	-	-	-	-	-	-	-
A4200 Eversholt St (between Phoenix Road and Polygon Road)	Northbound	225	13	252	29	460	38	194	23	73%	160%
	Southbound	277	15	282	43	394	17	91	-4	30%	-20%
Chalton Street (between Euston Road and Phoenix Road)	Northbound	66	3	95	10	307	6	208	1	209%	18%
	Southbound	50	2	75	5	123	3	45	1	59%	35%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Midland Road (between Brill Place and Euston Road)	Southbound	577	25	571	57	632	29	33	0	5%	-1%
A5202 Pancras Road (between Euston Road and Goods Way)	Northbound	243	10	298	21	343	11	35	0	11%	4%
	Southbound	214	10	216	20	231	10	5	0	2%	0%
A5203 York Way (between Euston Road and Caledonia Street)	Northbound	559	28	526	59	574	31	19	1	3%	3%
<b>South of Euston Road</b>											
A4201 Portland Place (between Devonshire Street and Park Crescent)	Northbound	273	5	286	9	303	3	13	-1	4%	-19%
	Southbound	421	14	388	24	366	12	-35	0	-9%	1%
B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street)	Southbound	258	13	234	25	228	12	-18	-1	-7%	-6%
Cleveland Street (between Greenwell Street and Clipstone Street)	Southbound	170	7	250	16	258	7	1	0	0%	-5%
A400 Tottenham Court Road (between Grafton Way and Warren Street)	Southbound	876	68	745	115	892	63	90	6	11%	10%
A400 Gower Street (between Grafton Way and Gower Place)	Southbound	711	27	524	45	666	25	119	2	22%	11%
Gordon Street (between Endsleigh Gardens and Euston Road)	Northbound	317	40	336	43	0	0	-358	-21	-100%	-100%
	Southbound	265	10	284	14	0	0	-291	-7	-100%	-100%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)	Northbound	353	15	380	83	440	44	19	3	4%	8%
	Southbound	608	18	638	48	731	24	69	0	10%	0%
B504 Judd Street (between Bidborough Street and Euston Road)	Northbound	166	18	172	31	225	16	38	1	21%	4%
	Southbound	494	24	432	50	447	24	-11	-1	-2%	-5%
A501 Gray's Inn Road (east of Birkenhead Street)	Northbound	1,704	86	1,680	174	1,857	91	90	4	5%	5%
<b>Euston Road</b>											
A501 Euston Road (between Euston Circus and Melton Street)	Eastbound	1,850	97	1,763	201	1,940	104	77	4	4%	4%
	Westbound	1,666	114	1,739	243	1,746	114	-115	-8	-6%	-6%
A501 Euston Road (between Melton Street and A4200 Upper Woburn Place)	Eastbound	1,630	82	1,579	172	2,024	101	359	15	22%	18%
	Westbound	1,520	87	1,475	222	1,743	111	157	0	10%	0%
A501 Euston Road (between A4200 Upper Woburn Place and Churchway)	Eastbound	1,334	74	1,269	153	1,613	80	267	3	20%	4%
	Westbound	1,499	81	1,461	158	1,671	82	131	3	9%	4%

Table 6-72: 2021 construction Scenario 3, Euston screenline PM Peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
<b>North of Euston Road</b>											
Outer Circle (between Park Square East and Chester Road)	Northbound	561	0	594	0	658	0	65	0	11%	
	Southbound	216	0	209	0	220	0	11	0	5%	
A4201 Albany Street (between Robert Street and Longford Street)	Northbound	295	6	346	6	384	4	35	1	10%	26%
	Southbound	356	5	304	2	413	2	107	1	35%	87%
Stanhope Street (between Longford Street and Robert Street)	Northbound	27	1	54	1	58	1	4	0	7%	0%
	Southbound	317	5	168	3	102	2	-68	0	-40%	13%
A400 Hampstead Road (between Drummond Street and Robert Street)	Northbound	635	15	630	12	545	47	-91	41	-14%	679%
	Southbound	351	6	331	3	377	45	44	43	13%	2776%
Cardington Street (north of Drummond Street)	Northbound	192	2	162	2	0	0	-163	-1	-100%	-100%
	Southbound	254	5	296	8	0	0	-300	-4	-100%	-100%
New Cobourg Street (north of Starcross Street)	Northbound	-	-	-	-	-	-	-	-	-	-
	Southbound	-	-	-	-	-	-	-	-	-	-
A4200 Eversholt St (between Phoenix Road and Polygon Road)	Northbound	311	6	276	5	397	5	119	2	43%	89%
	Southbound	297	6	283	3	493	1	209	0	74%	-30%
Chalton Street (between	Northbound	99	1	96	3	208	2	111	0	114%	7%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Euston Road and Phoenix Road)	Southbound	5	0	15	2	115	1	99	0	621%	6%
Midland Road (between Brill Place and Euston Road)	Southbound	547	7	742	24	924	11	170	0	23%	-3%
A5202 Pancras Road (between Euston Road and Goods Way)	Northbound	185	2	602	8	762	4	156	0	26%	12%
A5203 York Way (between Euston Road and Caledonia Street)	Southbound	241	4	170	5	178	2	6	0	4%	4%
	Northbound	801	18	618	28	672	14	40	0	6%	3%
<b>South of Euston Road</b>											
A4201 Portland Place (between Devonshire Street and Park Crescent)	Northbound	238	0	238	0	249	0	11	0	4%	0%
	Southbound	545	9	515	23	529	11	4	-1	1%	-5%
B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street)	Southbound	385	4	265	2	172	1	-94	0	-36%	48%
Cleveland Street (between Greenwell Street and Clipstone Street)	Southbound	144	1	271	3	287	1	14	0	5%	-8%
A400 Tottenham Court Road (between Grafton Way and Warren Street)	Southbound	991	19	908	21	956	11	37	0	4%	2%
A400 Gower Street (between Grafton Way and Gower Place)	Southbound	566	4	360	11	417	7	51	1	14%	22%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Gordon Street (between Endsleigh Gardens and Euston Road)	Northbound	423	9	417	8	0	0	-421	-4	-100%	-100%
	Southbound	194	3	251	3	0	0	-253	-2	-100%	-100%
A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)	Northbound	327	6	376	6	601	5	221	2	58%	55%
	Southbound	540	7	624	13	777	7	146	0	23%	0%
B504 Judd Street (between Bidborough Street and Euston Road)	Northbound	145	2	113	2	165	2	52	1	45%	64%
	Southbound	288	7	292	8	326	4	29	0	10%	3%
A501 Gray's Inn Road (east of Birkenhead Street)	Northbound	1,630	29	1,694	49	1,839	26	120	2	7%	6%
<b>Euston Road</b>											
A501 Euston Road (between Euston Circus and Melton Street)	Eastbound	1,162	37	1,286	17	1,578	12	283	4	22%	43%
	Westbound	1,609	32	1,673	33	1,728	20	38	4	2%	25%
A501 Euston Road (between Melton Street and A4200 Upper Woburn Place)	Eastbound	1,378	36	1,518	15	1,806	9	281	1	18%	15%
	Westbound	1,372	29	1,279	29	1,731	17	437	3	34%	20%
A501 Euston Road (between A4200 Upper Woburn Place and Churchway)	Eastbound	1,133	33	1,214	12	1,471	7	251	1	21%	17%
	Westbound	1,408	26	1,277	32	1,538	18	245	2	19%	11%

Table 6-73: 2021 construction Scenario 3, Camden screenline AM Peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	321	10	338	11	345	12	7	1	2%	11%
	Southbound	728	43	756	44	761	45	6	1	1%	3%
A5200 York Way (north of Vale Road)	Northbound	280	38	293	40	313	40	20	0	7%	1%
	Southbound	573	38	600	39	617	39	17	-1	3%	-2%
A5202 St Pancras Way (north of Baynes Street)	Southbound	716	34	698	34	648	27	-49	-7	-7%	-21%
Randolph Street (East of Royal College Street)	Eastbound	92	2	123	2	115	2	-9	0	-7%	-8%
Royal College Street (south of Camden Rd)	Northbound	351	25	341	26	339	26	-3	0	-1%	0%
A503 Camden Road (south of Royal College St)	Northbound	563	32	599	32	602	31	3	-1	1%	-2%
	Southbound	880	56	929	56	914	62	-15	6	-2%	10%
A400 Camden Street (south of Camden Gardens)	Southbound	1,203	65	1,244	65	1,250	65	6	0	0%	-1%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	297	18	324	19	317	19	-7	0	-2%	-2%
	Southbound	268	27	246	27	242	27	-4	0	-2%	0%
Hawley Road	Northbound	1,014	56	1,023	57	1,045	59	22	2	2%	3%
A502 Chalk Farm Road (west of Hawley Street)	Northbound	87	10	88	10	90	7	2	-3	2%	-28%
	Southbound	840	43	849	44	871	45	21	1	2%	2%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Primrose Hill Road (south of Adelaide Road)	Northbound	341	15	331	12	303	12	-28	-1	-8%	-7%
	Southbound	640	31	638	32	638	31	0	0	0%	-2%
Avenue Road (south of B509 Adelaide Road)	Northbound	276	10	271	10	286	13	15	2	5%	22%
	Southbound	885	22	923	22	920	22	-3	0	0%	-1%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	618	52	660	55	703	98	43	43	6%	79%
	Southbound	841	65	806	66	828	109	23	43	3%	66%
Loudoun Road (south of Alexandra Place)	Northbound	542	10	529	8	525	8	-4	0	-1%	-2%
	Southbound	314	11	328	12	349	13	21	1	6%	12%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	310	8	308	8	331	8	22	0	7%	1%
	Southbound	568	15	563	15	571	15	8	0	1%	-1%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	558	30	572	29	580	29	8	0	1%	1%
	Southbound	252	35	272	33	272	32	0	-1	0%	-2%

Table 6-74: 2021 construction Scenario 3, Camden screenline PM peak

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	459	5	482	5	505	5	23	0	5%	4%
	Southbound	484	4	514	5	520	5	6	0	1%	1%
A5200 York Way (north of Vale Road)	Northbound	405	20	475	17	564	17	89	0	19%	1%
	Southbound	366	10	392	10	420	10	29	0	7%	0%
A5202 St Pancras Way (north of Baynes Street)	Southbound	555	6	562	8	549	7	-13	-1	-2%	-8%
Randolph Street (East of Royal College Street)	Eastbound	242	1	244	1	211	1	-33	0	-14%	-24%
Royal College Street (south of Camden Rd)	Northbound	485	10	477	12	480	12	3	0	1%	0%
A503 Camden Road (south of Royal College St)	Northbound	876	14	817	15	764	15	-53	0	-6%	-1%
	Southbound	636	20	644	16	655	17	11	0	2%	2%
A400 Camden Street (south of Camden Gardens)	Southbound	763	16	721	11	698	11	-22	0	-3%	-2%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	474	17	469	13	474	12	5	0	1%	-3%
	Southbound	241	1	237	1	210	1	-28	0	-12%	0%
Hawley Road	Northbound	1074	20	1054	17	1053	17	-1	0	0%	0%
A502 Chalk Farm Road (west)	Northbound	221	11	229	11	236	11	6	0	3%	0%

Location	Direction	2012 baseline		2021 baseline		2021 construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
of Hawley Street)	Southbound	746	16	704	14	704	14	0	0	0%	0%
Primrose Hill Road (south of Adelaide Road)	Northbound	382	6	408	6	410	6	2	0	1%	-4%
	Southbound	370	6	381	6	364	6	-17	0	-5%	-2%
Avenue Road (south of B509 Adelaide Road)	Northbound	508	4	499	5	495	5	-4	0	-1%	0%
	Southbound	639	7	627	6	645	9	18	3	3%	58%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	724	40	768	43	758	86	-10	43	-1%	100%
	Southbound	507	32	529	33	507	72	-22	39	-4%	121%
Loudoun Road (south of Alexandra Place)	Northbound	425	6	408	5	405	5	-2	0	-1%	0%
	Southbound	392	5	424	6	446	7	22	0	5%	6%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	538	9	537	9	515	8	-23	0	-4%	-3%
	Southbound	313	4	352	4	352	4	0	0	0%	1%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	576	16	563	15	578	15	14	0	3%	1%
	Southbound	499	8	481	8	487	8	7	0	1%	1%

Table 6-75: Links with traffic Increase, Scenario 3 AM Peak

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Albany Street (between Park Village East and Gloucester Gate)	CFA1	Northbound	599	20	673	23	74	3	12%	14%
	CFA1	Southbound	499	17	600	19	101	2	20%	10%
Arlington Road (north of Mornington Crescent)	CFA1 & 2	Southbound	41	0	98	1	57	1	138%	
	CFA1 & 2	Southbound	157	4	184	9	27	5	17%	111%
Chalton Street (north of Euston Road)	CFA1	Northbound	100	5	307	6	208	1	209%	18%
	CFA1	Southbound	77	2	123	3	45	1	59%	35%
Churchway (north of Euston Road)	CFA1	Northbound	18	0	118	5	100	5	559%	
	CFA1	Southbound	91	2	111	1	20	-1	22%	-35%
A501 Euston Road (slip road from North Gower Street)	CFA1	Eastbound	226	7	260	9	33	2	15%	34%
A4200 Eversholt Street (north of Polygon Road)	CFA1	Northbound	255	10	659	34	404	23	158%	229%
	CFA1	Southbound	99	8	260	8	161	0	162%	-1%
A41 Finchley Road (south of Canon Hill)	CFA3	Northbound	637	56	656	96	19	40	3%	71%
	CFA3	Southbound	825	63	816	104	-10	42	-1%	67%
A400 Gower Street (south of Euston Road)	CFA1	Southbound	128	3	155	3	27	0	21%	5%
A400 Hampstead Road (south of Drummond Street)	CFA1	Northbound	450	26	538	69	88	43	20%	167%
	CFA1	Southbound	519	41	613	86	94	46	18%	112%
B504 Judd Street (south of Cromer)	CFA1	Northbound	172	19	230	22	57	2	33%	11%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Street)	CFA1	Southbound	379	27	394	28	15	1	4%	4%
A404 Harrow Road (north of Edgware Road)	CFA1	Westbound	42	5	82	48	40	43	96%	787%
	CFA1	Eastbound	305	24	297	66	-8	42	-3%	173%
Mornington Crescent (east of Arlington Road)	CFA1	Westbound	51	0	109	1	58	1	115%	293%
	CFA1	Eastbound	165	4	194	9	29	5	17%	109%
Mornington Street (east of Park Village East)	CFA1	Westbound	103	1	261	8	158	7	153%	469%
	CFA1	Eastbound	191	5	221	9	30	5	16%	106%
North Gower Street (south of Euston Street)	CFA1	Northbound	23	3	0	0	-23	-3	-100%	-100%
	CFA1	Southbound	10	0	33	1	23	1	217%	215%
Polygon Road (east of Eversholt Street)	CFA1	Westbound	60	3	269	4	209	1	347%	35%
	CFA1	Eastbound	52	1	94	2	42	1	80%	64%
Prince Albert Road (north of Albany Street)	CFA1 & 3	Westbound	172	18	129	18	-43	0	-25%	-1%
	CFA1 & 3	Eastbound	742	45	742	50	0	5	0%	11%
Robert Street (east of Stanhope Street)	CFA1	Westbound	333	8	230	17	-103	9	-31%	111%
	CFA1	Eastbound	61	1	26	15	-34	13	-57%	1101%
A5205 St. John's Wood Road (east of Lisson Grove)	CFA3	Westbound	443	20	406	59	-37	39	-8%	197%
	CFA3	Eastbound	487	9	492	52	5	43	1%	462%
Stanhope Street (south of Granby Terrace)	CFA1	Northbound	8	0	76	2	68	2	874%	
	CFA1	Southbound	67	1	173	7	106	6	159%	826%
Torrington Place (west of Huntley)	CFA1	Westbound	106	5	206	13	100	8	95%	159%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Street)										
A41 Wellington Road (north of St. John's Wood Road)	CFA1	Northbound	677	50	713	92	37	42	5%	85%
	CFA1	Southbound	1140	71	1096	111	-43	40	-4%	56%

Table 6-76: Links with traffic increase, Scenario 3 PM Peak

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Albany Street (between Park Village East and Gloucester Gate)	CFA1	Northbound	725	7	710	7	-15	1	-2%	9%
	CFA1	Southbound	263	1	277	1	14	0	5%	27%
Arlington Road (north of Mornington Crescent)	CFA1 & 2	Southbound	54	0	185	1	131	0	244%	91%
	CFA1 & 2	Southbound	162	3	201	4	40	2	25%	61%
Chalton Street (north of Euston Road)	CFA1	Northbound	97	2	208	2	111	0	114%	7%
	CFA1	Southbound	16	1	115	1	99	0	621%	6%
Churchway (north of Euston Road)	CFA1	Northbound	18	0	19	1	1	1	3%	
	CFA1	Southbound	86	0	90	0	4	0	5%	0%
A501 Euston Road (slip road from North Gower Street)	CFA1	Eastbound	232	2	384	3	152	1	66%	73%
A4200 Eversholt Street (north of Polygon Road)	CFA1	Northbound	246	3	452	5	207	2	84%	82%
	CFA1	Southbound	200	2	553	2	353	0	176%	-2%
A41 Finchley Road (south of Canon Hill)	CFA3	Northbound	1,041	37	1,014	80	-27	43	-3%	115%
	CFA3	Southbound	685	22	662	65	-22	43	-3%	194%
A400 Gower Street (south of Euston Road)	CFA1	Southbound	84	2	120	3	36	1	43%	51%
A400 Hampstead Road (south of Drummond Street)	CFA1	Northbound	658	8	601	51	-57	43	-9%	560%
	CFA1	Southbound	334	2	379	44	45	43	13%	2445%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
B504 Judd Street (south of Cromer Street)	CFA1	Northbound	200	3	264	4	64	1	32%	30%
	CFA1	Southbound	398	6	370	6	-29	0	-7%	-4%
A404 Harrow Road (north of Edgware Road)	CFA1	Westbound	83	1	83	45	1	43	1%	3128%
	CFA1	Eastbound	29	2	13	45	-16	43	-55%	2530%
Mornington Crescent (east of Arlington Road)	CFA1	Westbound	89	0	230	1	141	0	160%	211%
	CFA1	Eastbound	183	3	224	4	41	2	22%	56%
Mornington Street (east of Park Village East)	CFA1	Westbound	54	0	151	1	97	1	179%	409%
	CFA1	Eastbound	200	3	237	5	37	2	18%	53%
North Gower Street (south of Euston Street)	CFA1	Northbound	28	1	0	0	-28	-1	-100%	-100%
	CFA1	Southbound	17	0	68	1	51	1	303%	304%
Polygon Road (east of Eversholt Street)	CFA1	Westbound	78	1	152	1	74	0	95%	-9%
	CFA1	Eastbound	57	1	119	1	62	0	110%	1%
Prince Albert Road (north of Albany Street)	CFA1 & 3	Westbound	202	6	217	6	15	0	8%	-3%
	CFA1 & 3	Eastbound	617	23	564	24	-53	1	-9%	6%
Robert Street (east of Stanhope Street)	CFA1	Westbound	346	3	74	13	-272	11	-79%	408%
	CFA1	Eastbound	44	1	4	15	-40	13	-91%	904%
A5205 St. John's Wood Road (east of Lisson Grove)	CFA3	Westbound	483	3	448	46	-35	43	-7%	1376%
	CFA3	Eastbound	443	5	388	48	-55	43	-12%	894%
Stanhope Street (south of Granby Terrace)	CFA1	Northbound	2	0	45	0	43	0	2088%	345%
	CFA1	Southbound	21	0	52	2	31	2	152%	786%

Location	CFA	Direction	2021 baseline		2021 construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Torrington Place (west of Huntley Street)	CFA1	Westbound	123	1	202	2	78	1	63%	38%
A41 Wellington Road (north of St. John's Wood Road)	CFA1	Northbound	842	27	851	70	9	44	1%	163%
	CFA1	Southbound	421	15	395	54	-26	39	-6%	268%

### *Triggered junctions - Scenarios 1, 2 and 3*

- 6.4.227 The changes in traffic flows will also lead to increases in delays at the junctions set out in Table 6-77 and in Figure 6-82. The impact is measured as an increase in the ratio of volume to capacity where:
- the VoC for an approach arm increases to over 0.87 during the construction of the Proposed Scheme and the increase is 2% or more; or
  - the VoC for an approach arm is over 0.87 in the baseline and during the construction of the Proposed Scheme increases by 2% or more.
- 6.4.228 This indicates that three junctions are only triggered in Scenario 1, seven only in Scenario 2 and two only in Scenario 3, with the remainder being triggered in more than one scenario. Six junctions are triggered in all three scenarios. Four junctions have a VoC over 100%, namely, A5205 Prince Albert Road/A4201 Parkway, A401 Theobald's Road/A5200 Gray's Inn Road, Tavistock Square/Bedford Way and A501 Pentonville Road/Clarendon Square, and these are triggered, generally, in one time period only.
- 6.4.229 Those junctions triggered show a very close correlation with the roads that experience an increase in vehicle flow, either as a result of construction traffic or highway interventions with the majority close to Euston station. Scenario 2, with the highest level of construction traffic and a large number of highway interventions, has the greatest impact on congestion.
- 6.4.230 A400 Kentish Town Road/Hawley Crescent in CFA2, experiences increased congestion in Scenario 2, resulting from the HS1 works with A502 Chalk Farm Road/A502 Hawley Road in CFA2, experiencing increased congestion in Scenario 1.

Figure 6-82: Triggered junctions, AM (07:00-08:00) and PM (17:00-18:00) peak hours - Scenarios 1, 2 and 3 combined

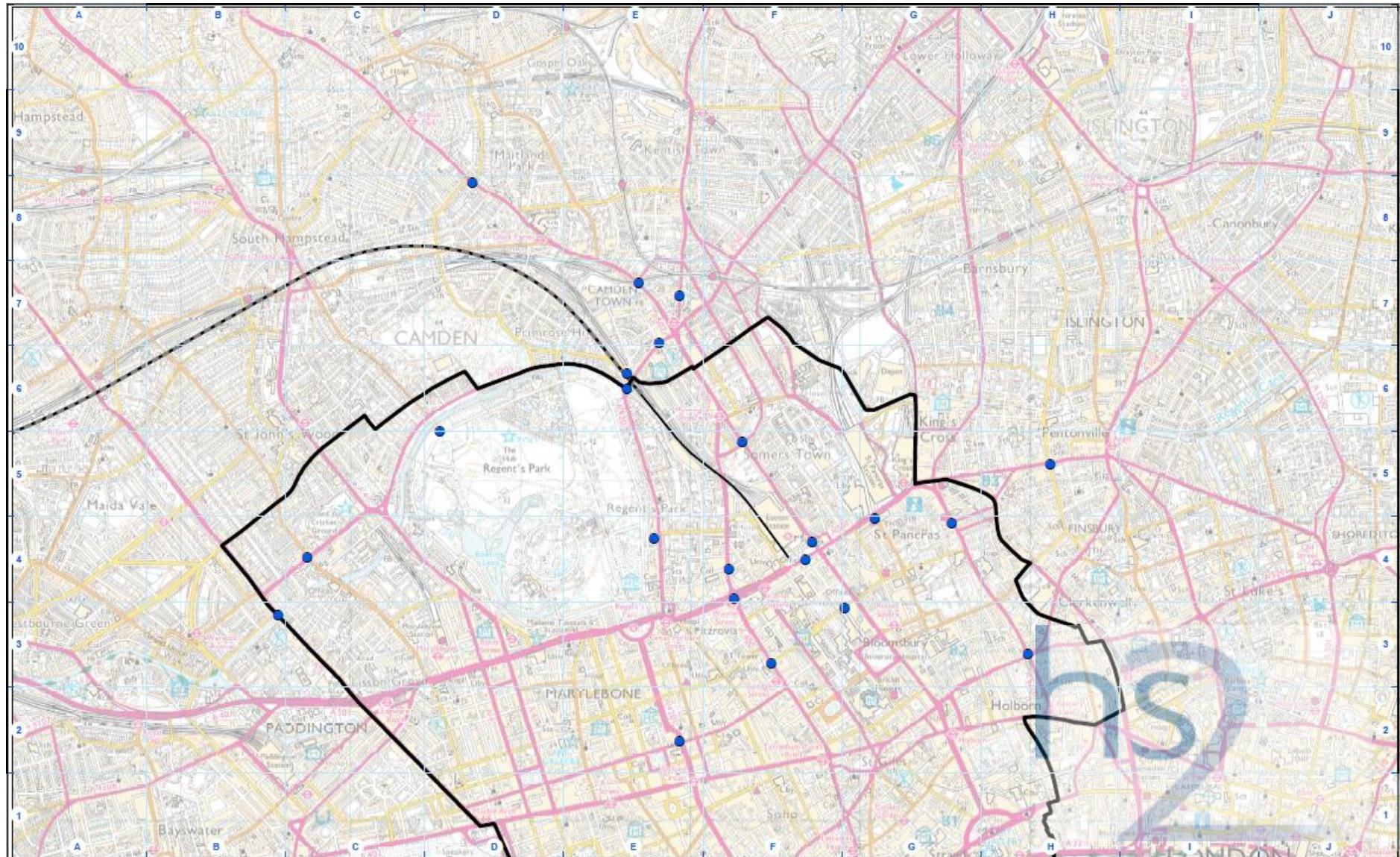




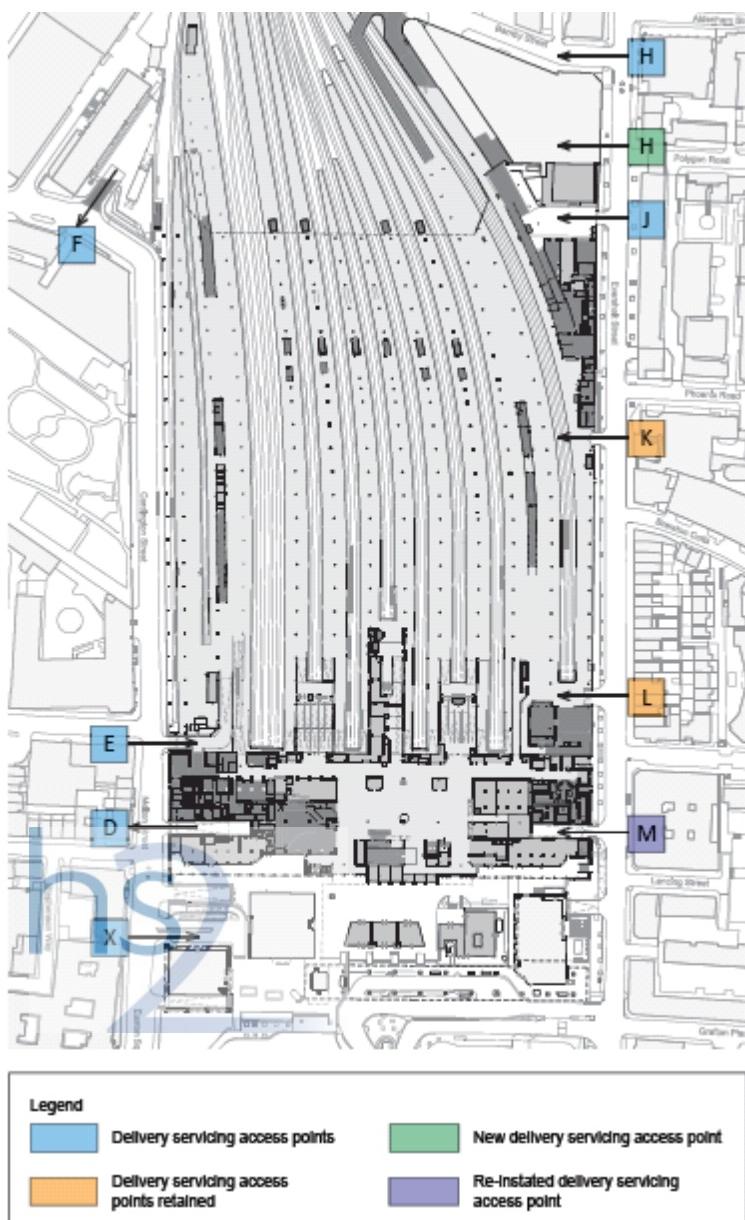
Table 6-77: Scenario 1, 2 and 3 - triggered junctions

CFA	Junction	AM peak hour (08:00-09:00)				PM peak hour (17:00-18:00)			
		BL	Test1	Test2	Test3	BL	Test1	Test2	Test3
CFA1	A5205 Prince Albert Road/A4201 Parkway	48.4	45.6	104.1	54.1	82.1	69.5	102.6	79.8
CFA1	A501 Euston Road/Euston bus station access	62.4	61.5	62.5	62.0	51.6	90.0	91.3	91.6
CFA1	A501 Euston Road (westbound)/A400 Hampstead Road	83.1	96.5	96.8	91.6	68.0	72.4	73.9	69.7
CFA1	A4200 Eversholt Street/A4200 Grafton Place	70.9	92.9	96.0	96.0	94.3	94.3	93.9	94.4
CFA1	A5205 St John's Wood Road/B507 Lisson Grove	90.4	100.1	76.0	93.1	69.7	63.3	72.8	61.0
CFA1	A501 Euston Road/B504 Judd Street	77.5	93.6	94.0	92.3	41.5	63.5	64.1	60.0
CFA1	A401 Theobald's Road/A5200 Gray's Inn Road	76.8	76.8	77.5	76.6	95.9	102.9	101.9	103.3
CFA1	Tavistock Square/Bedford Way	44.8	105.8	104.4	106.4	48.5	47.7	47.0	47.7
CFA1	A4201 Albany Street/Robert Street	69.0	94.9	97.5	77.8	69.0	87.4	98.2	81.6
CFA1	A5200 Gray's Inn Road/A201 Swinton Street	60.9	69.4	68.2	68.6	83.5	90.9	92.6	90.1
CFA1	A400 Tottenham Court Road/Torrington Place	51.9	77.1	78.9	75.9	71.7	88.2	91.3	89.3
CFA1	Outer Circle/B525 Avenue Road	61.4	67.1	81.6	67.4	62.0	69.5	87.2	63.3
CFA1	A5204 Cavendish Place/A4201 Langham Place	79.3	89.9	91.2	86.3	67.1	70.5	71.8	69.3
CFA1	A400 Hampstead Road/Drummond Street	14.5	69.5	74.9	9.7	27.1	58.9	89.8	15.3
CFA1	A5 Edgware Road/Aberdeen Place	84.6	83.4	85.9	91.8	78.3	79.6	79.4	81.9
CFA1	A4200 Eversholt Street/A400 Oakley Square	80.8	85.4	82.5	88.0	88.2	96.9	96.1	97.0
CFA2	A501 Pentonville Road/Claremont Square	88.0	103.6	100.4	100.9	95.6	99.5	99.8	99.6
CFA2	A502 Chalk Farm Road/A502 Hawley Road	83.8	90.4	-	85.7	81.5	89.8	-	81.5
CFA2	A400 Kentish Town Road/Hawley Crescent	61.5	52.7	90.2	60.2	88.4	86.1	93.8	88.7
CFA2	A4201 Parkway/Arlington Road	27.7	27.8	54.9	36.2	40.8	29.7	90.5	39.6
CFA3	A502 Haverstock Hill/Parkhill Road	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
CFA3	Regents Park Road/Oval Road	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

### Euston station servicing

- 6.4.231 During construction, Euston station will continue to operate and will continue to generate freight and service vehicle movements that will need to be accommodated. However, as the construction progresses, the locations at which servicing will take place will change. The location of delivery and servicing facilities is shown in Figure 6-83.

Figure 6-83: Delivery servicing points



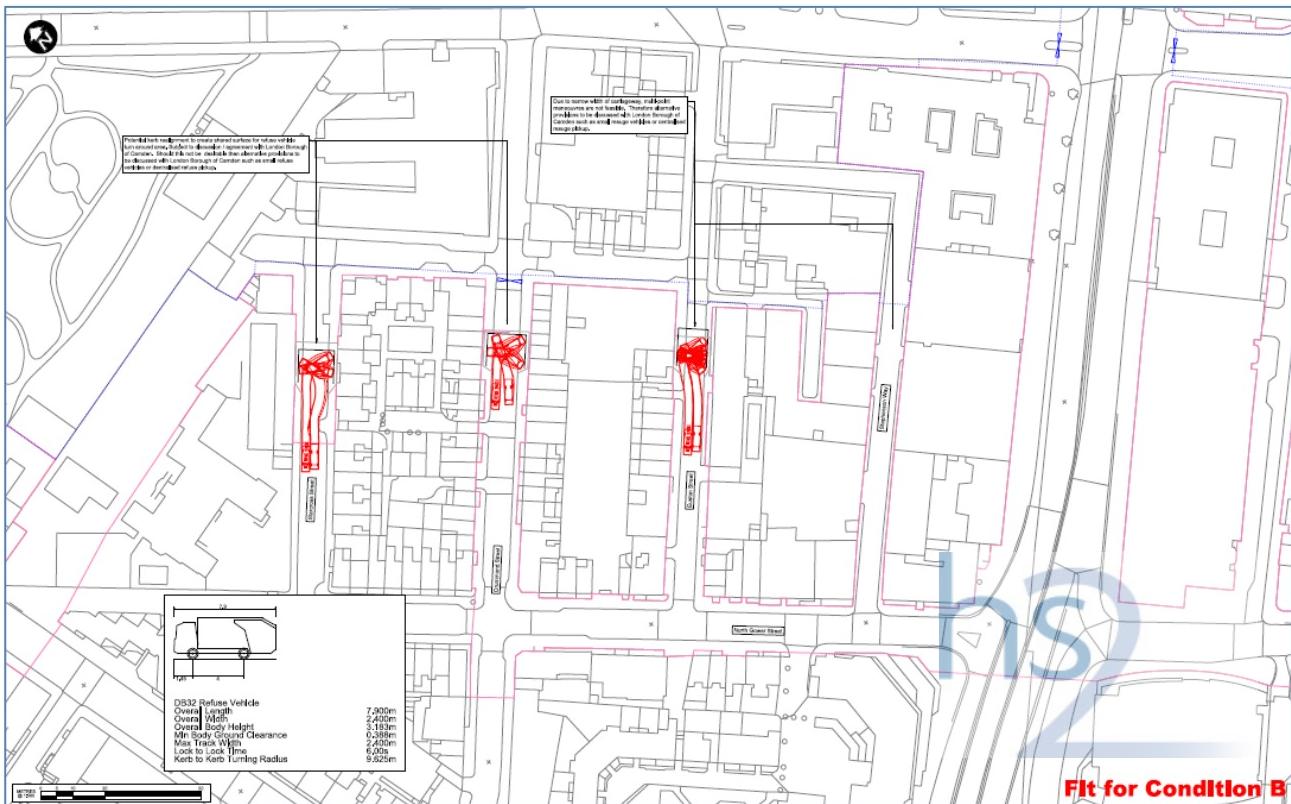
- 6.4.232 During the first period of constructions, between 2016 and 2018 (approximately), the western side of the station will be closed, resulting in the loss of access to station servicing areas through Gate E. The exit ramp onto Melton Street (Gate D) from the basement servicing areas, and the exit ramp onto Cardington Street (Gate F) from the existing service deck, will also be closed. The construction work will also result in the closure of Gates H and J on A4200 Eversholt Street and Gate X on Melton Street.
- 6.4.233 The loading bays accessed through servicing Gate M on the western side of A4200 Eversholt Street, just north of Lancing Street, and the basement servicing area, will both still be in operation. However, access to and egress from the basement servicing area will be through Gate M on A4200 Eversholt Street. Traffic management measures will be used to facilitate this.

- 6.4.234 Deliveries currently using Gates E, J and X will be relocated to either Gate M or to a replacement Gate H, which will provide two-way access to the service deck just to the north of existing Gate J, on A4200 Eversholt Street. Vehicles that currently exit the station using Gate F will now do so using the replacement Gate H. The closure of Gate D will be mitigated by allowing two-way movements through Gate M.
- 6.4.235 During the second period of construction, between 2018 and 2022 (approximately), work will commence on the development of the new LU station box. This will result in the closure of the basement servicing area and the loss of a substantial area of storage and support space. However, the majority of this lost space will be re-provided on the service deck, which will be completed and accessible at this stage.
- 6.4.236 As a result of the closure of the existing basement, deliveries that are currently undertaken using access point M will be re-located to replacement Gate H on A4200 Eversholt Street.
- 6.4.237 During the third and final period of construction, between 2023 and 2026, servicing access will once again be available through Gate M. Servicing activity will be split between the basement and the service deck, accessible through replacement Gate H.

### *Local servicing*

- 6.4.238 During the construction period, hoardings will be required around the perimeter of the worksites. Where these hoardings cut across existing roads, refuse vehicles will be required to either reverse along the road to continue their collection route or turnaround using a multi-point manoeuvre. These multi-point manoeuvres will need to be discussed and agreed with LBC during subsequent design stages. Should LBC require alternative refuse collection provision to be made, then again, these will be discussed with LBC in the future. The refuse swept paths are shown in Figure 6-84.

Figure 6-84: Refuse collection vehicle access on Starcross Street, Drummond Street and Euston Street



## Accidents and safety

- 6.4.239 The construction of the Proposed Development would result in an increase in the flow of traffic through certain junctions and on certain links, as outlined in the Highway Impacts section. The following links are expected to be subject to an increase in the risk of accidents:
- A501 Euston Road (between Churchway and Dukes Road);
  - A501 Euston Road/A400 Tottenham Court Road;
  - A501 Euston Road/A4200 Eversholt Street/A4200 Upper Woburn Place;
  - A4200 Eversholt Street/Lidlington Place;
  - A501 Euston Road/Pancras Road; and
  - A400 Hampstead Road/Drummond Street.
- 6.4.240 The increase in risk is associated with the anticipated changes in daily traffic flows of between 30% and 120% which is an increase from the future baseline flows, due to changes on the highway network, or travel demands, as a result of construction traffic. It is generally accepted that, with increased traffic flows alongside an increase in pedestrian and cyclist activity, on street, the risk of accidents is always present. Therefore, accident risk reviews are an on-going remit to reduce accidents and risk.

- 6.4.241 Any worksites that are in the immediate vicinity of the above listed junctions will have the appropriate on street and road signs to alert drivers, pedestrians and cyclists to help reduce the risk of accidents at junctions near to construction worksites.

### *Waterways and canals*

- 6.4.242 There are no canals or waterways within the study area for this CFA. Therefore there will be no operational impact on waterways and canals.

### *Other mitigation measures*

- 6.4.243 The engineering and construction design has been conceived to minimise the impacts during construction. The implementation of the draft CoCP, in combination with the construction workforce travel plans, will mitigate the transport related impacts during construction of the Proposed Scheme. The reductions in impacts arising from the travel plan measures have not been included in the assessment.

- 6.4.244 A framework construction worker Travel Plan will be produced by each principal contractor which will aim to encourage the use of sustainable modes of transport and reduce the impact of workforce traffic on the highway network.

- 6.4.245 Rail bus replacement services would also be provided, as necessary, when rail possessions are in place.

- 6.4.246 While changes in traffic flows will lead to a substantial increase in delays to traffic, most signal junctions in central London are under adaptive control, such as SCOOT, which will optimise the signal stages in real time. Therefore, many of those junctions with an identified minor impact will be mitigated through adaptive control, although this is less effective where there is a substantial overall net increase in traffic through the junction.

- 6.4.247 Detailed planning of the bus network and service frequencies during construction will be undertaken by TfL London Buses during the detailed planning stage.

- 6.4.248 Investigation will continue to establish whether movement of some excavated material by rail is feasible.

## 6.5 Camden and HS1 Link (CFA2) and Primrose Hill to Kilburn (CFA3) construction impact assessment

### Camden and HS1 Link (CFA2) and Primrose Hill to Kilburn (CFA3) Proposed Scheme construction description

#### *Construction activities*

- 6.5.2 Details of the construction phasing are provided in Volume 2 Section 2.
- 6.5.3 The work in Camden and HS1 Link is broken down into the following phases:
- Phase one will be the rebuilding of the northern side of the existing railway alignment. The maximum estimated overall duration for these works likely to be up to two years with mostly short term road closures of up to four weeks in duration;
  - Phase two will involve switching the North London Line to the new northern side structures and will last for approximately one year with no road closures expected;
  - Phase three will be the rebuilding of the southern side of the existing railway alignment (again with mostly short term road closures of up to four weeks in duration) and is expected to have an overall maximum duration of two years; and
  - Phase four will involve track installation and fit out which is expected to take around one and a half years with no road closures expected.
- 6.5.4 Construction phasing of works will mean that not all the above movements shown in Table 6-78 will occur at the same time and the programme of peak construction works at each site will in practice not be simultaneous.
- 6.5.5 The timing and duration of the operational periods for each construction compound for CFA2 is indicated below in Figure 6-85.

Figure 6-85: Camden and HS1 Link (CFA2) construction activity phasing

Construction activity	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	quarters										
Advance works	1	2	3	4	1	2	3	4	1	2	3
<b>Civil engineering works</b>											
Camley Street main compound											
Bridge and viaduct works											
North London Line (north) satellite compound											

Construction activity	2016				2017				2018				2019				2020				2021				2022				2023				2024				2025			
	quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
North London Line (south) satellite compound																																								
St Pancras Way/Baynes Street (north) satellite compound																																								
Bridge works north (A5202 St Pancras Way / Baynes Street)																																								
St Pancras Way/Baynes Street (south) satellite compound																																								
Bridge works south (A5202 St Pancras Way / Baynes Street)																																								
Randolph Street (north) satellite compound																																								
Bridge works north (Randolph Street)																																								
Randolph Street (south) satellite compound																																								
Bridge works south (Randolph Street)																																								
Camden Road (north) satellite compound																																								
Bridge works north (A503 Camden Road)																																								
Camden Road (south) satellite compound																																								
Bridge works south (A503 Camden Road)																																								
Camden Road Station Viaduct satellite compound																																								
Camden Road Station on viaduct																																								
North London Line Viaduct to Kentish Town) satellite compound																																								
North London Line viaduct																																								
Camden Street Bridge satellite compound																																								
Bridge works (Camden Road )																																								
Chalk Farm Viaduct satellite compound																																								

Construction activity	2016				2017				2018				2019				2020				2021				2022				2023				2024				2025			
	quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Chalk Farm viaduct (Arches 1-9)																																								
Chalk Farm Road satellite compound																																								
Camden Goods Arches																																								
Bridge works (A502 Chalk Farm Road)																																								
HS1-HS2 Link portal main compound																																								
HS1-HS2 Link portal																																								
HS1-HS2 Link tunnel																																								
Old Oak Common Station compound																																								
HS1-HS2 Link tunnel																																								
<b>Rail infrastructure and systems works</b>																																								
Camley Street main compound																																								
Railway installation works																																								
Modifications to the existing railway																																								
North London Line Link (south) satellite compound																																								
Railway installation works																																								
Modifications to the existing railway																																								
HS1-HS2 Link portal main compound																																								
HS1-HS2 Link railway installation works outside the tunnel																																								
Modifications to the existing railway																																								
Portal building fit out																																								
Victoria Road Cross over box main compound																																								
Railway installation works and tunnel fit out within HS1-HS2 Link tunnel																																								

Construction activity	2016				2017				2018				2019				2020				2021				2022				2023				2024				2025			
	quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Willesden Euroterminal main compound																																								
Support existing railway modifications																																								
F Sidings satellite compound																																								
Support existing railway modifications																																								
Northolt Tunnel and earthworks main compound																																								
Railway installation works and tunnel fit out within HS1- HS2 Link tunnel																																								
Testing and commissioning of the railway																																								

6.5.6 The work in CFA3 is proposed in one main phase for each site as set out in the construction programme shown in Figure 6-86 below.

Figure 6-86: CFA3 illustrative construction programme

Construction activity	2016				2017				2018				2019				2020				2021				2022				2023				2024				2025																										
	quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters																														
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																											
<b>Advance works</b>																																																															
Advance works																																																															
<b>Civil engineering works</b>																																																															
<b>Adelaide Road vent shaft main compound</b>																																																															
Adelaide Road vent shaft																																																															
<b>Alexandra Place vent shaft main compound</b>																																																															
Alexandra Place vent shaft																																																															
<b>Old Oak Common Station main compound</b>																																																															
Euston tunnel																																																															
HS1-HS2 Link tunnel																																																															
<b>Rail infrastructure and systems works</b>																																																															
<b>Adelaide Road vent shaft main compound</b>																																																															
Adelaide Road vent shaft fit out works																																																															
<b>Alexandra Place vent shaft main compound</b>																																																															
Alexandra Place vent shaft fit out works																																																															
<b>Camden carriage sidings satellite compound</b>																																																															

Construction activity	2016				2017				2018				2019				2020				2021				2022				2023				2024				2025				2026			
	quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Modifications to the existing railway																																												
<b>HS1-HS2 Link portal main compound</b>																																												
Railway installation - tunnel fit out (HS1-HS2 Link tunnel)																																												
<b>Victoria Road crossover box main compound</b>																																												
Railway installation/tunnel fit out (HS1-HS2 Link and Euston tunnels)																																												
<b>Northolt tunnel and earthworks main compound</b>																																												
Railway installation/tunnel fit out (HS1-HS2 Link and Euston tunnels)																																												
<b>Commissioning</b>																																												
Commissioning																																												

- 6.5.7 In order to assess the different combinations of enabling works within these CFAs, potential impacts arising from utility diversions and construction lorry movements throughout the construction period across these areas have been considered for three distinct temporal phases:
- Scenario 1, Quarter 2 (Q2) 2017. This phase corresponds with early advance enabling works and utilities on the highway network around Euston together with around 70% of the maximum construction traffic arising from construction in the CFA1;
  - Scenario 2, Quarter 3 (Q3) 2019. This phase corresponds with the main construction period in CFA1 together with the peak month (i.e. the maximum total) of construction traffic for the construction of the Adelaide Road and Alexandra Place shafts, closures at the B509 Adelaide Road (CFA3) along with works and temporary highway closures at the Chalk Farm Road Bridge (in CFA2); and
  - Scenario 3, Quarter 4 (Q4) 2021. During this phase, the majority of enabling works on the highway around Euston will be complete, and there will be only short term highway interventions in CFA2.
- 6.5.8 For each scenario, there will be different levels of construction traffic, together with different patterns of road closures and traffic management impacting the highway network. The scenarios have been modelled as Scenario 1, Scenario 2 and Scenario 3 as set out in the section on Highway Impacts.

- 6.5.9 Utilities works (including diversions) have been considered in some detail where works are expected to be substantial and where the traffic and transport impacts from the works separately, or in combination with other works, is greater than other construction activities arising within the area. Associated potential diversion requirements and outline programme for diversions of the major utilities have also been identified.
- 6.5.10 Where required and reasonably practicable the main utilities diversions will be mainly undertaken in the enabling phases or programmed within the main works. It is expected that road closures will not be required for utilities diversions and all reasonable efforts will be made to maintain traffic flows. The utilities works will therefore not result in substantial traffic and transport impacts.

### *Compounds and construction sites*

- 6.5.11 Within these CFAs the key construction activities will be the replacement of a number of railway bridges over the public highway and widening of the existing viaduct, and construction of two shafts. As well as the works associated with the two main construction compounds in the area (Camley Street and the HS1-HS2 Link Portal), works at six of the satellite construction compounds will involve replacement of bridges which directly pass over the public highway. It is expected that construction activities for the bridge replacement, and at the Adelaide Road shaft site, will result in temporary full road closures which will have a direct impact on traffic movements in the area.
- 6.5.12 The duration of when there will be busy transport activity at each construction compound is shown in Table 6-78 below. This represents the periods when the construction traffic flows will be greater than 50% of the peak flows. Also shown is the estimated number of daily vehicle trips during the peak month of activity, the lower end of the range shows the average number of trips in the busy period and the upper end the peak month flows. The assessment scenario has assumed the peak month for the combination of activities relevant to these CFAs, i.e. not necessarily the peak activity at each individual site.

Table 6-78 Camden and HS1 Link and Primrose Hill to Kilburn typical vehicle trip generation for construction compounds

Compound type	Location	Access to/from compound	Indicative start / setup date	Estimated duration of use	Estimated duration with busy vehicle movements	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars / LGV	HGV
Main compound and facilities	Camley Street, Camden	Camley Street	2017	7 years	7 years	Less than 10	Less than 10
Satellite compound and facilities	North London Line (north)	Camley Street and Wrotham Road	2018	9 months	Under 1 month	Less than 10	Less than 10
Satellite compound and facilities	North London Line (south)	Cedar Way and Camley Street	2021	3 years and 3 months	Under 1 month	Less than 10	Less than 10
Satellite compound and facilities	St Pancras Way/Baynes Street (north)	St Pancras Way	2018	7 months	1 month	5-20	40-60
Satellite compound and facilities	St Pancras Way/Baynes Street (south)	St Pancras Way and Baynes Street	2021	1 year	1 month	5-20	40-60
Satellite compound and facilities	Randolph Street (north)	Randolph Street (via West side of the road junction with St Pancras Way.)	2018	1 year	6 weeks	5-20	40-60
Satellite compound and facilities	Randolph Street (south)	Randolph Street (via East side of the road junction with Royal College Street.)	2021	1 year	6 weeks	5-20	40-60
Satellite compound and facilities	Camden Road (north)	Camden Road	2018	9 months	1 month	5-20	40-60
Satellite compound and facilities	Camden Road (south)	Camden Road / Royal College Street	2022	9 Months	1 month	5-20	40-60
Satellite compound and facilities	Camden Road Station Viaduct	Prowse Place	2018	4 years and 3 months	1 month	10-20	0-5

Compound type	Location	Access to/from compound	Indicative start / setup date	Estimated duration of use	Estimated duration with busy vehicle movements	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars / LGV	HGV
Satellite compound and facilities	North London Line Viaduct (to Kentish Town)	Kentish Town Road / Torbay Street	2018	3 years and 6 months	1 month	5-20	40-60
Satellite compound and facilities	Camden Street Bridge	Camden Street (north of the bridge)	2018	1 year	2 months	5-20	40-60
Satellite compound and facilities	Chalk Farm Viaduct	Kentish Town Road / Haven Street	2018	6 months	Under 1 month	5-20	40-60
Satellite compound and facilities	Chalk Farm Road	Chalk Farm Road / Castlehaven Road	2018	4 years	6 weeks	5-20	40-60
Main compound and facilities	HS1 - HS2 Link portal	Regent's Park Road / Morrisons Access Road	2017	8 years	9 months	5-20	40-60
Main site	Adelaide Road vent shaft	B509 Adelaide Road	2018	5 years	4-6 months	10-20	90-100
Main site	Alexandra Place vent shaft	Alexandra Place	2018	5 years	Up to 2.5 years	10-20	90-100
Satellite site	Camden carriage sidings	Gloucester Avenue	Late 2015	1 years	Under 1 month	Less than 10	Less than 10

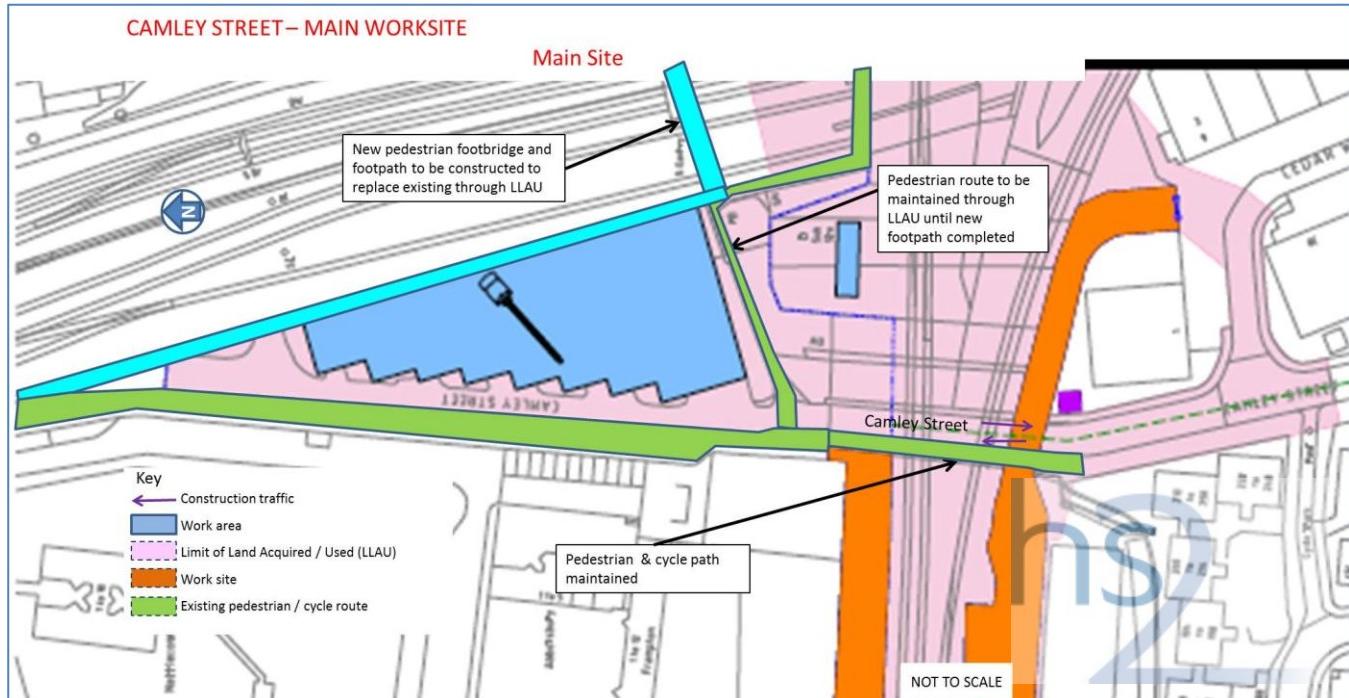
### *Construction lorry routes*

- 6.5.13 Construction lorry routes are indicated Table 6-43 and described in relation to each construction compound below.
- 6.5.14 Wherever possible, site access for construction traffic would adopt a left in – left out circulation principle to minimise disruption to traffic by avoiding right turns across existing traffic. A series of potential diversion strategies were identified and considered in liaison with TfL.

## Camley Street satellite compound

- 6.5.15 HGVs would access the Camley Street worksite (Figure 6-87) from the A400 TLRN via the A5202 St. Pancras Way, Granary Street and Camley Street. HGVs would egress the site in the reverse direction through Granary Street to the A5202 St Pancras Way southbound, turning right into Crowndale Road and then left onto the A400 TLRN (Camden Street).
- 6.5.16 When works to the bridges in St Pancras Way temporarily close the road access to Camley Street will be via the A501 Euston Road and left into the A5202 Pancras Road. Egress will remain unchanged.

Figure 6-87: Camley Street satellite compound



- 6.5.17 The majority of access by HGVs to the Camley Street, St Pancras Way/Baynes Street, and Randolph Street satellite compounds will be from the Adelaide Road main compound. Two routes are available depending upon the works taking place. When appropriate HGVs would travel from Adelaide Road and either turn left into Haverstock Hill, right into Prince of Wales Road, right into Kentish Town Road, left into St Pancras Way and then either continue across Camden Road or turn right into Camden Road. At other times it may be appropriate for HGVs to turn right from Adelaide Road into Chalk Farm Road, left into Castlehaven Road, continuing into Hawley Road, across Kentish Town Road into Camden Street, left into Crowndale Road and left into Royal College Street.

## St Pancras Way/Baynes Street satellite compound

- 6.5.18 In order to access the St Pancras Way / Baynes Street site (Figure 6-88 and Figure 6-89) from Royal College Street, whilst the roads remain open, HGVs would turn right into Randolph Street and right into St Pancras Way to the site. Egress will be either via St Pancras Way, right into Crowndale Road and left onto the A400 TLRN, or via Baynes Street, right into Royal College Street, left into Camden Road and left onto the A400 TLRN.

Figure 6-88: St Pancras Way & Baynes Street (north)

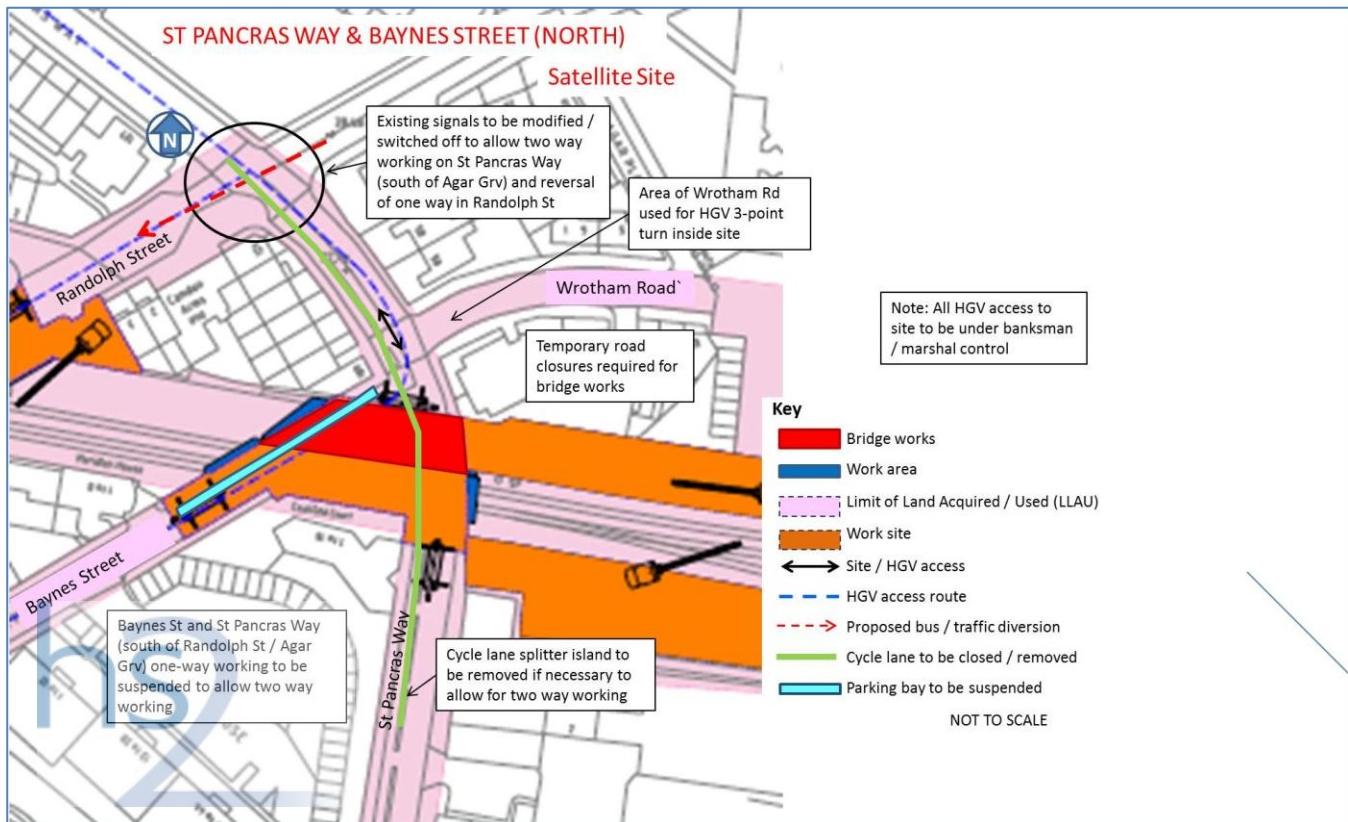
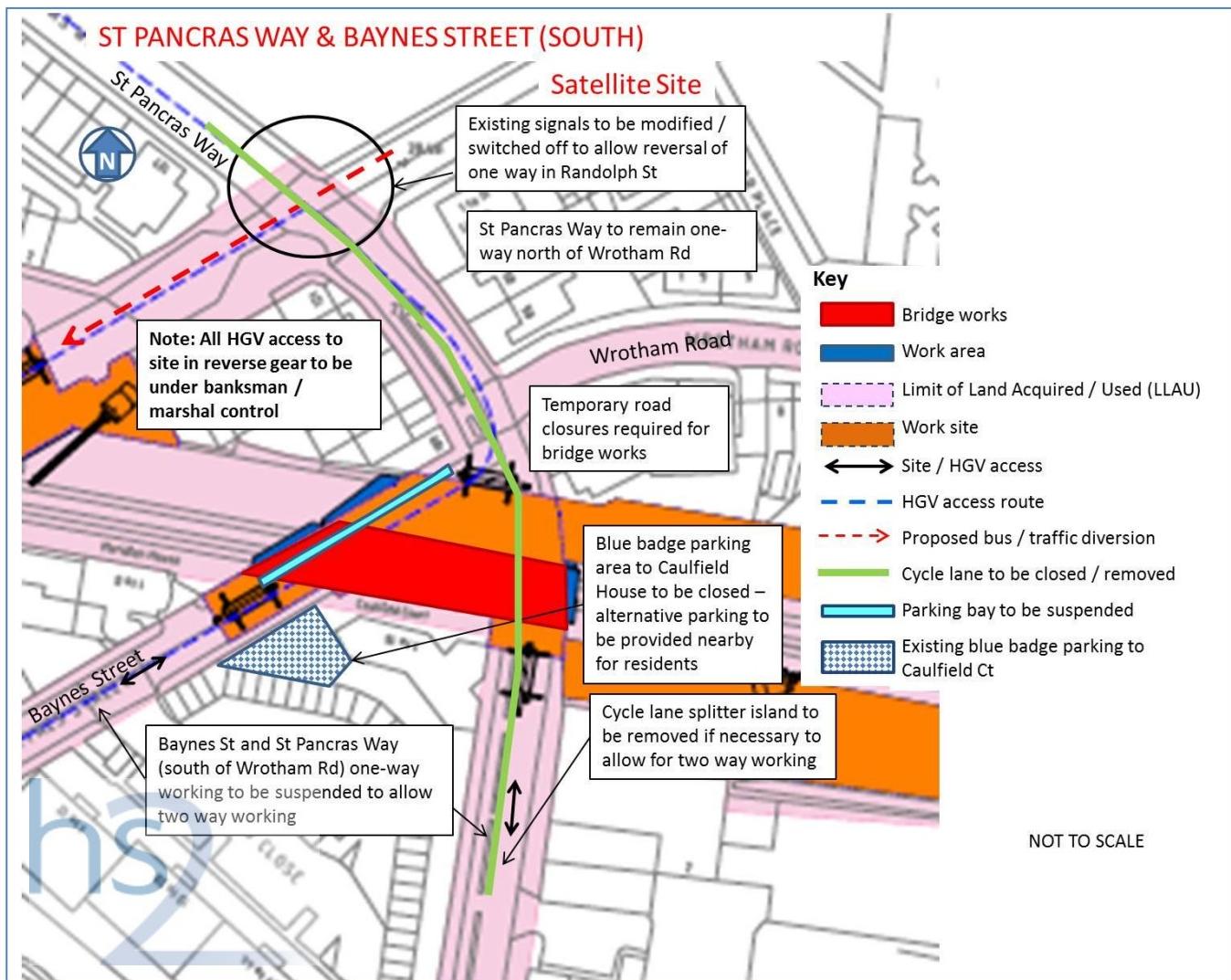


Figure 6-89: St Pancras Way & Baynes Street (south) worksites



- 6.5.19 Temporary road closures of St Pancras Way and Baynes Street will be required for short periods to facilitate works on the bridges. The existing eastbound one-way working in Randolph Street will be reversed to operate westbound. The signals at the junction of Randolph Street / St Pancras Way / Agar Street will be switched off / modified and the junction alignment adjusted to allow for the reversal of flows in Randolph Street. One way working in St Pancras Way, between the Georgiana Street and Randolph Street, and in Baynes Street will be suspended to allow two-way traffic movements. The cycle splitter island in St Pancras Way will be removed, if necessary, to allow two-way working. A private parking area to Caulfield Court, currently used by disabled residents, will also be temporarily closed.

- 6.5.20 During the closure periods HGV access to the northern side remains the same. Egress from the northern side will be via a temporary length of two-way working in St Pancras Way, left turn into Randolph Street, right turn into Royal College Street, then either left turn into Camden Road and left turn onto the A400 TLRN, or left into Prince of Wales Road, left into Haverstock Hill and right into Adelaide Road. HGVs turning in St Pancras Way / Wrotham Road to egress northwards to Randolph Street will be under marshal / banksman control.
- 6.5.21 During the closures HGV access to the southwest side of the Baynes Street works will be made via a right turn from Royal College Street into Baynes Street. Egress will be from Baynes Street, right into Royal College Street and either left into Camden Road and left onto the A400 TLRN, or left into Prince of Wales Road, left into Haverstock Hill and right into Adelaide Road. HGVs entering / leaving Baynes Street may have to reverse the length of the street under marshal / banksman control as there is insufficient space in Baynes Street to turn.
- 6.5.22 During the closures HGV access to the south side of the St Pancras Way works will be made via a right turn from Royal College Street into Georgiana Street and a left turn into St Pancras Way. Egress from the south side will be via St Pancras Way southbound, right into Crowndale Road and either left onto the A400 TLRN or right into the A400 Camden High Street, continuing to Chalk Farm Road and left into Adelaide Road. HGVs turning in St Pancras Way to egress northwards to Randolph Street will be under marshal / banksman control.

### **Randolph Street satellite compound**

- 6.5.23 In order to access the Randolph Street site (Figure 6-90 and Figure 6-91), from Royal College Street, whilst the roads remain open, HGVs would turn right into Randolph Street. Egress will be either via St Pancras Way, right into Crowndale Road and either left onto the A400 TLRN or right onto the A400 Camden High Street returning to Adelaide Road.

Figure 6-90: Randolph Street (north)

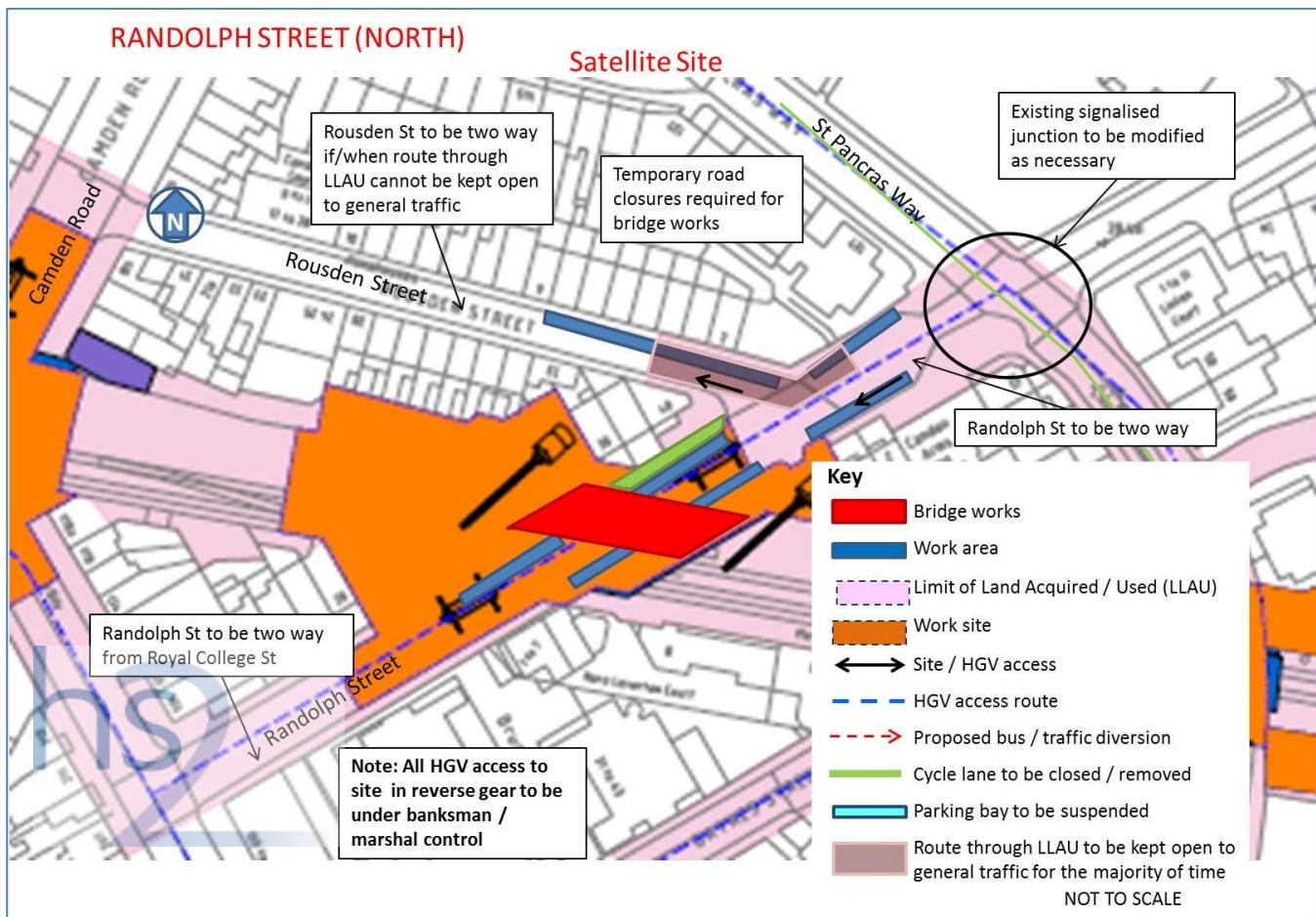
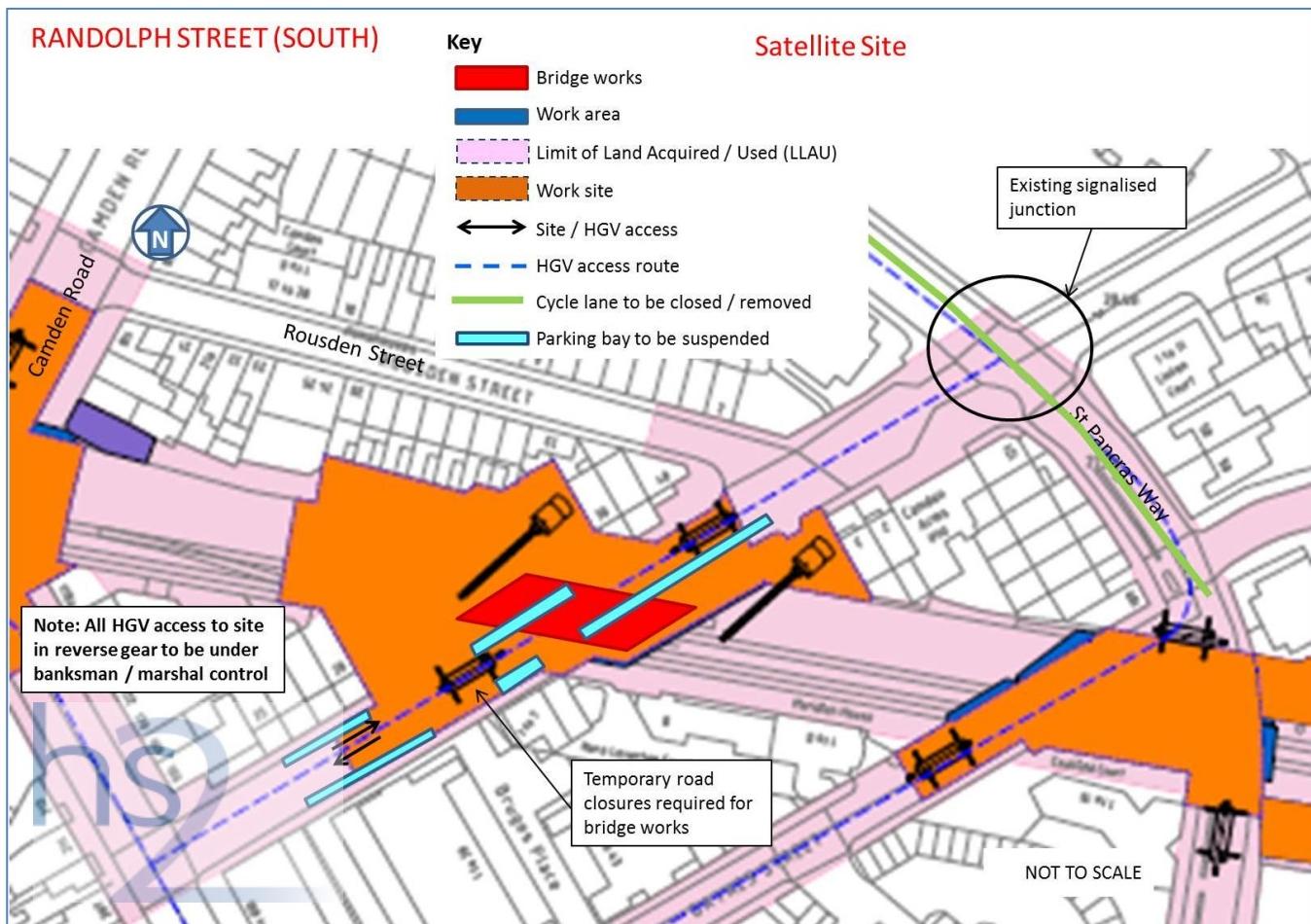


Figure 6-91: Randolph Street (south)



- 6.5.25 Temporary road closures of Randolph Street will be required for short periods to facilitate works on the bridges. The existing eastbound one-way working in Randolph Street will be suspended to allow two-way working. The signals at the junction of Randolph Street / St Pancras Way / Agar Street will be switched off / modified and the junction alignment adjusted to allow for the two-way working in Randolph Street.
- 6.5.26 During the closures HGV access to the southwest side of the Randolph Street works will be made via a right turn from Royal College Street into Randolph Street. Egress will be from Randolph Street, right into Royal College Street, and either left into Camden Road and left onto the A400 TLRN, or right into the A400 Camden High Street, continuing to Chalk Farm Road and left into Adelaide Road. HGVs entering / leaving Randolph Street may have to reverse the length of the street under marshal / banksman control as there is insufficient space in Randolph Street to turn.
- 6.5.27 During the closures HGV access to the northeast side of the Randolph Street works will be from Royal College Street, right into St Pancras Way, right into Randolph Street. Egress will be either via Rousden Street, left into Camden Road and left or right onto the A400 TLRN; or right into St Pancras Way, right into Crowndale Road and left or right onto the A400 TLRN.

### **Camden Road satellite compound**

- 6.5.28 HGV access to the Camden Road site (Figure 6-92 and Figure 6-93 )is directly from Camden road or from Royal College Street. Egress will be either via Camden Road southbound and left onto the A400 TLRN and, if returning to Adelaide Road, right into Crowndale Road and right onto the A400 to Adelaide Road; or continuing northwards on Royal College Street, right into St Pancras Way, right into Crowndale Road and left or right onto the A400 TLRN.

Figure 6-92: Camden Road (north)

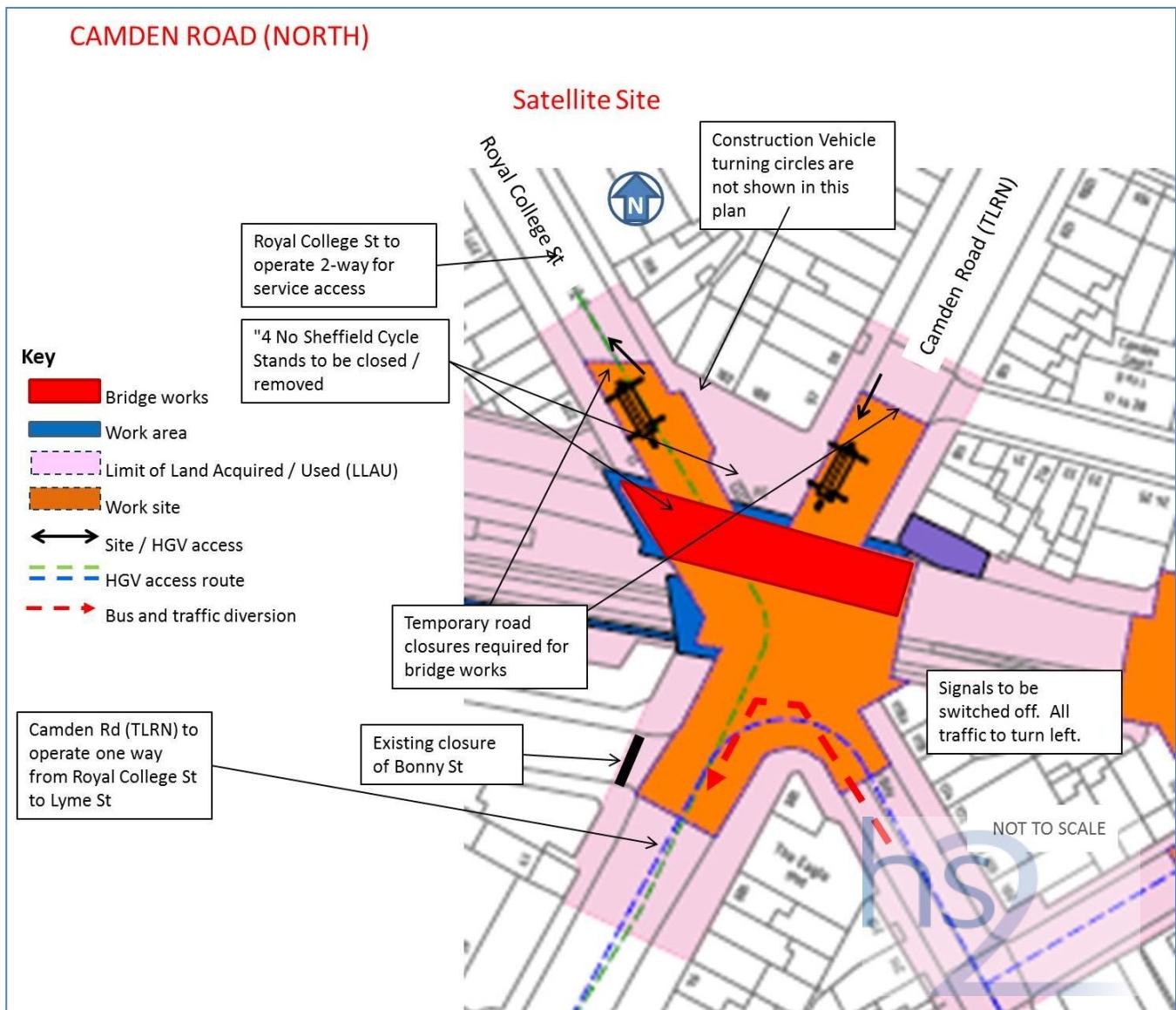
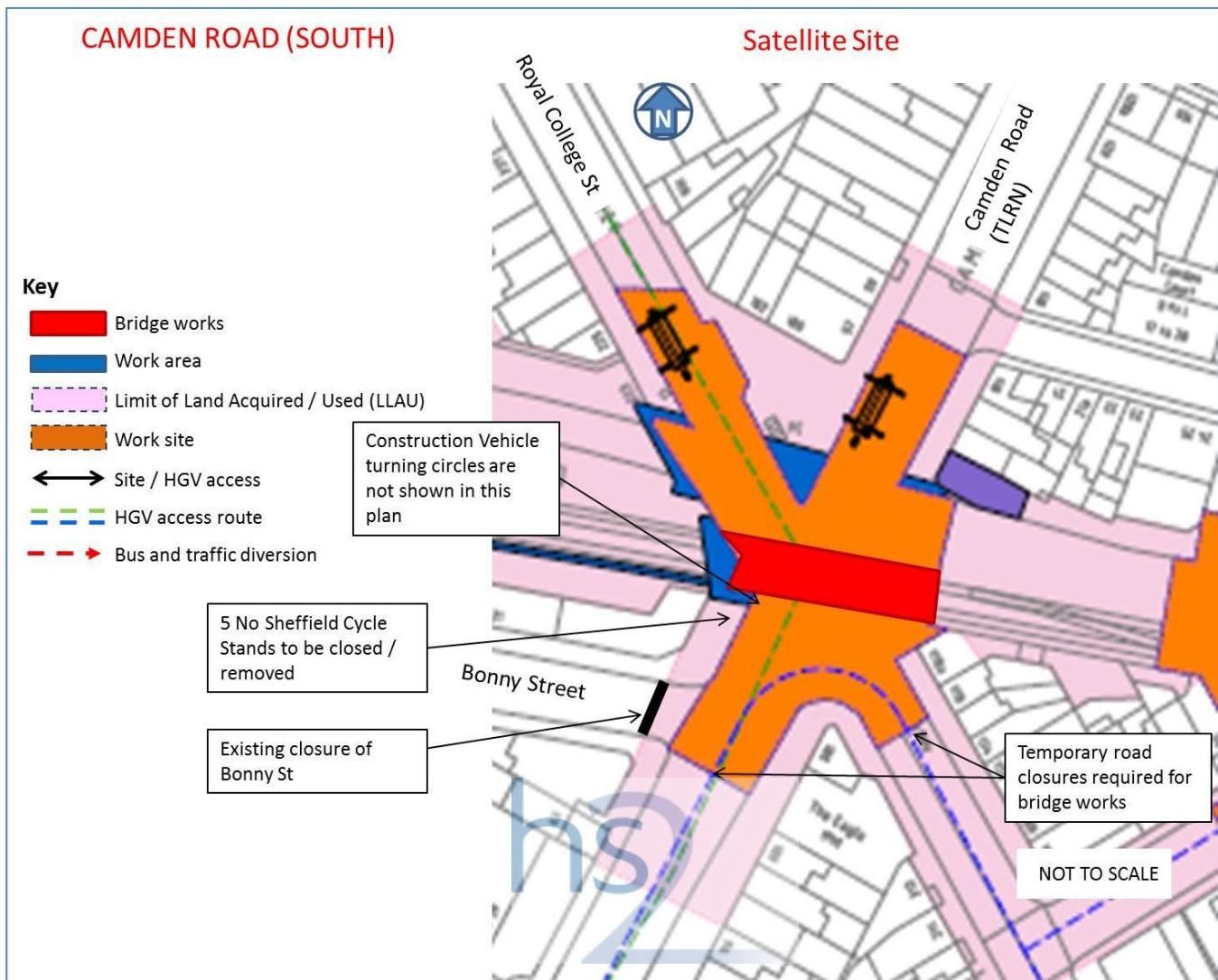


Figure 6-93: Camden Road (south)



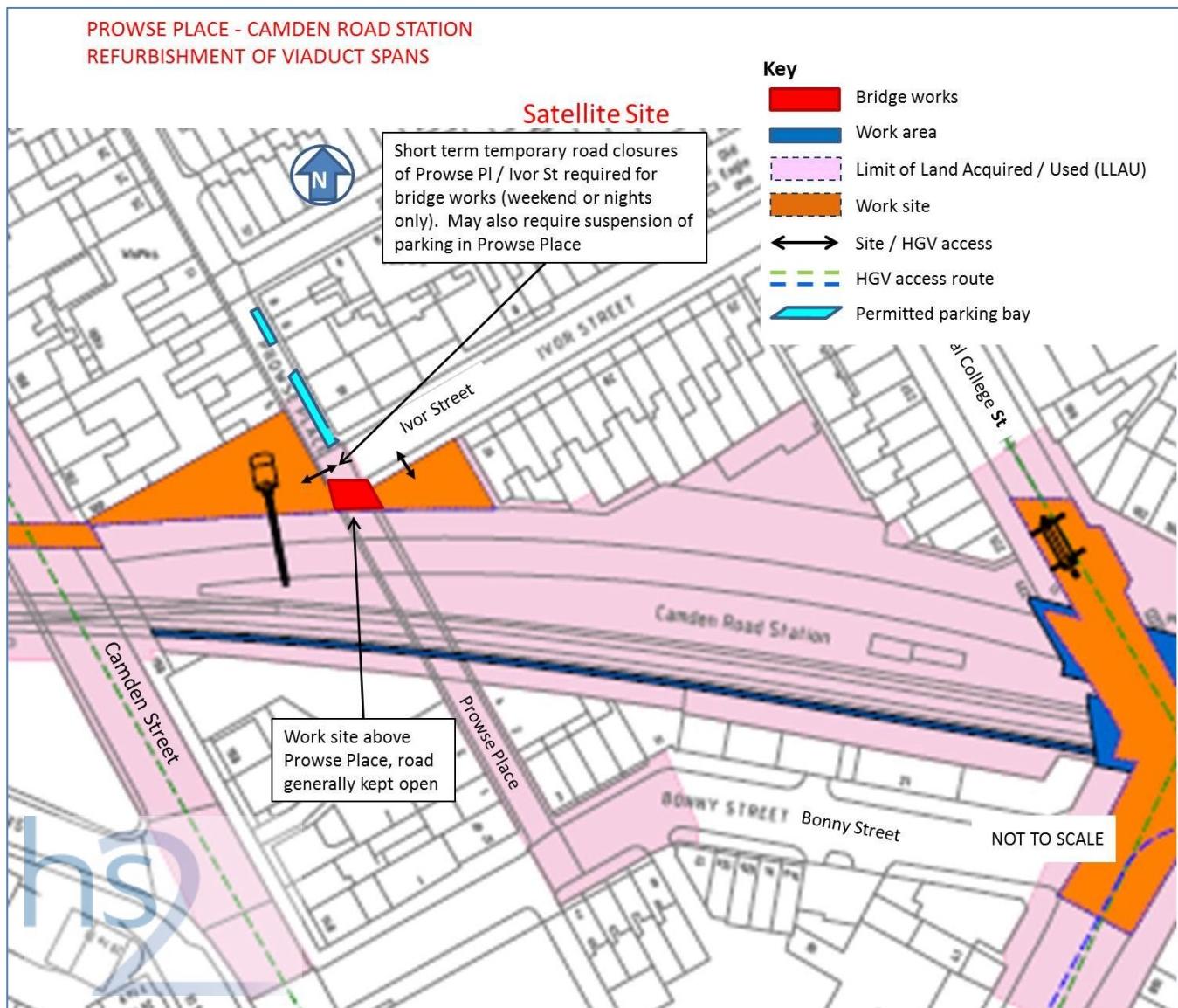
- 6.5.29 Temporary road closures of Camden Road / Royal College Street will be required for short periods to facilitate works on the bridges. During these road closures the traffic signals at the junction will be switched off. The existing one-way working in Royal College Street, between Camden Road and St Pancras Way, will be temporarily suspended to allow two-way working. Alterations will be required to the traffic signal junction at Royal College Street / St Pancras Way to facilitate the introduction of two-way working in Royal College Street. A number of cycle parking stands and a motorcycle parking bay are also likely to be removed / suspended.

- 6.5.30 During the closures HGV access to the north side of Camden Road will be from Adelaide Road, left into Haverstock Hill, right into Prince of Wales Road, right into Kentish Town Road, left into St Pancras Way and right into Camden Road. Egress will be either northbound on Camden Road, left into Torriano Avenue, right into Leighton Road, right into Brecknock Road / York Way and right onto Euston Road; or through the worksite into Royal College Street northbound, right into St Pancras Way, right into Crowndale Road and left or right onto the A400 TLRN. HGVs turning in Camden Road to egress northwards will be under marshal / banksman control.
- 6.5.31 During the closures HGV access to the north side of Royal College Street will be either from Camden Road southbound (with access as for the north side of Camden Road) turning right, through the worksite, into Royal College Street; or from Kentish Town Road, left into Royal College Street southbound. Egress will either be through the worksite northbound on Camden Road, left turn into Torriano Avenue, right into Leighton Road, right into Brecknock Road / York Way and right onto Euston Road; or northbound on Royal College Street, right into St Pancras Way, right into Crowndale Road and left or right onto the A400. Turning movements within the site will be under marshal / banksman control.
- 6.5.32 During the closures access to the south side of the bridges will be from Royal College Street. Egress will be via Camden Road southbound, left turn onto the A400 TLRN.

### **Camden Road Station Viaduct satellite compound**

- 6.5.33 HGV access to this compound (Figure 6-94) is expected to be required only rarely. When necessary it will be either via Royal College Street, left into Ivor Street; or from Camden Street, left into Bonny Street, left into Prowse Place. Egress will be either via Ivor Street, left into Royal College Street, right into St Pancras Way, right into Crowndale Road and left or right onto the A400 TLRN; or right into Bonny Street and left onto the A400 TLRN (Camden Street).
- 6.5.34 A closure of Prowse Place is not expected to be required but any turning movements within the site will be under marshal / banksman control.

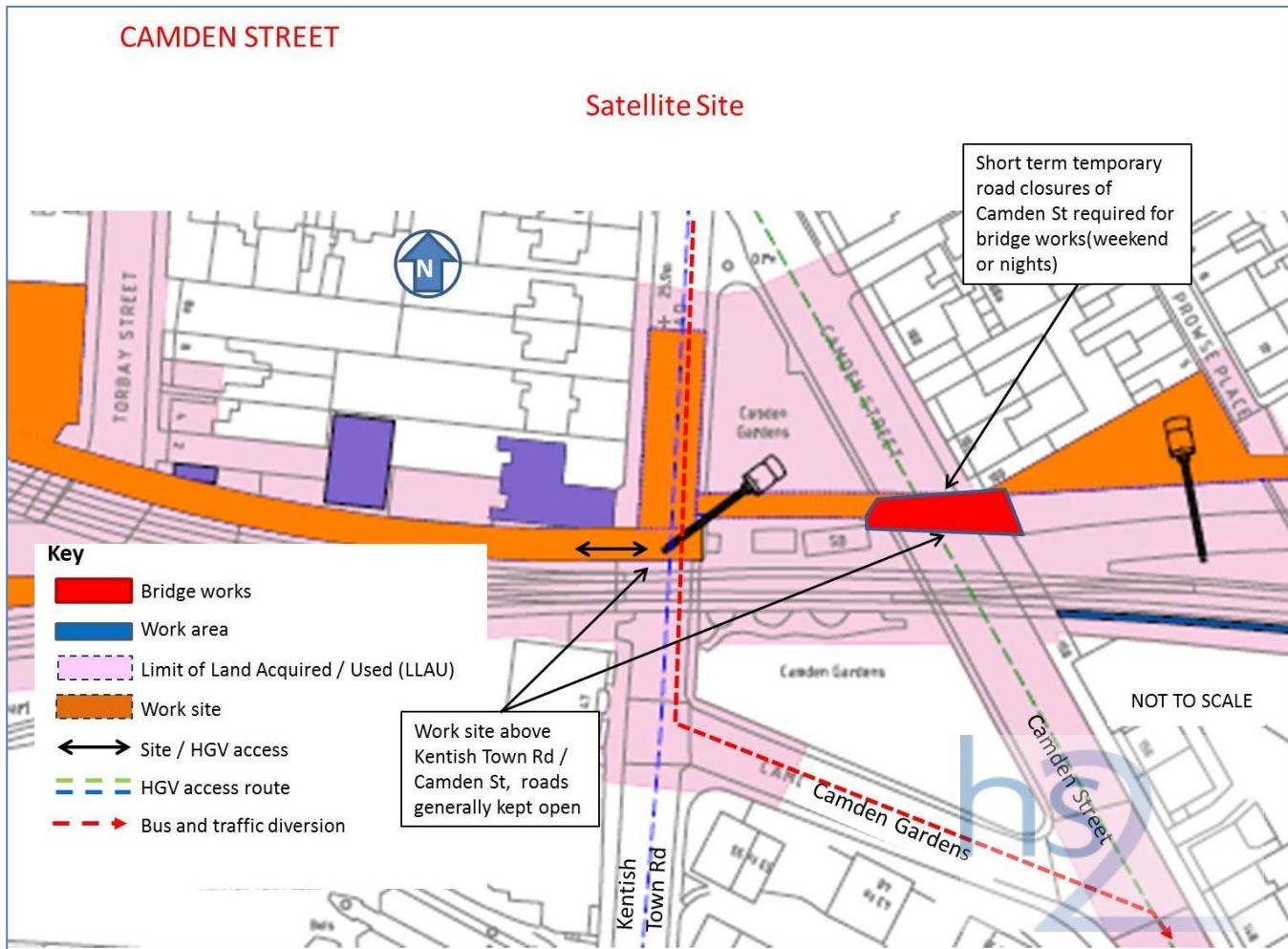
Figure 6-94: Camden Road Station viaduct satellite compound



### Camden Street bridge satellite compound

- 6.5.35 This compound will also be served by the Adelaide Road main site. HGVs will access the Camden Street worksite (Figure 6-95 ) from Adelaide Road turn right onto A502 Chalk Farm Road, then turn left into Castlehaven Road, continuing into Hawley Road, straight across the junction with Kentish Town Road, right onto the A400 TLRN (Camden Street).

Figure 6-95: Camden Street satellite compound

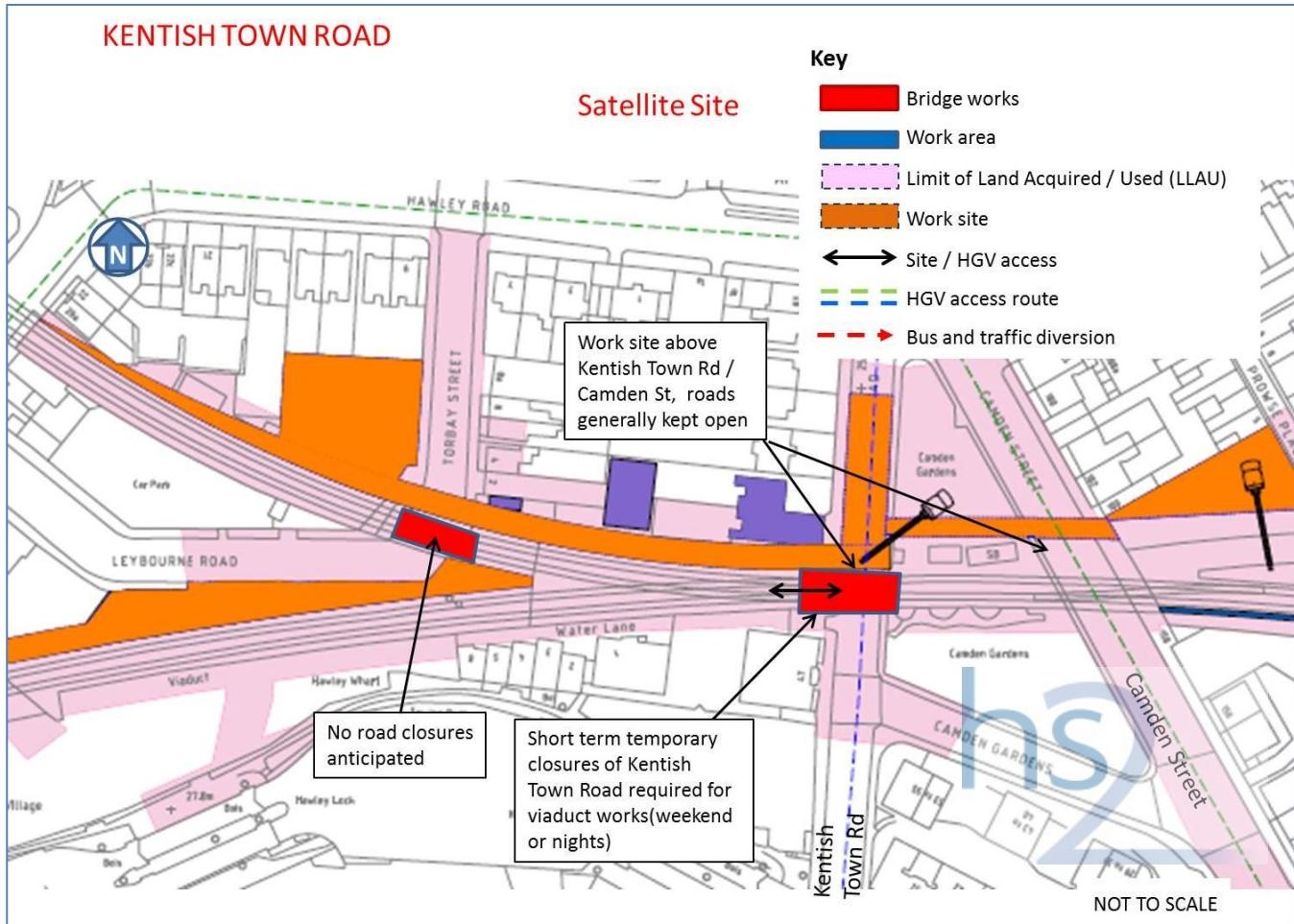


- 6.5.36 Short term temporary road closures of Camden Street will be required to facilitate works on the bridge. At these times the one-way working in Camden Street between Kentish Town Road and Camden Gardens will be suspended to allow two-way working. The traffic signals at the junction of Kentish Town Road / Camden Street may also need to be temporarily switched off to allow traffic to emerge from Camden Street.
- 6.5.37 During the closure periods HGV access to the north side of the bridge will remain the same, with egress from this side being from Camden Street, left into Kentish Town Road, left into Camden Gardens and right into the A400 Camden Street. Access to the south side of the bridge will be from Adelaide Road, right onto A502 Chalk Farm Road, left into Castlehaven Road, continuing into Hawley Road, right into Kentish Town Road, left into Camden Gardens and left into Camden Street. Egress will be southbound on Camden Street, the A400 TLRN. Any turning movements within the site will be under marshal / banksman control.

## North London Line Viaduct satellite compound

- 6.5.38 To access this compound (Figure 6-96) from Adelaide Road worksite HGVs would turn right onto A502 Chalk Farm Road, then turn left into Castlehaven Road, continuing into Hawley Road, right into Kentish Town Road.

Figure 6-96: North London Line Viaduct satellite compound



- 6.5.39 Short term temporary road closures of Kentish Town Road will be required to facilitate works on the bridge. During these periods the right turn ban from Kentish Town Road northbound into Camden Street southbound will be suspended.

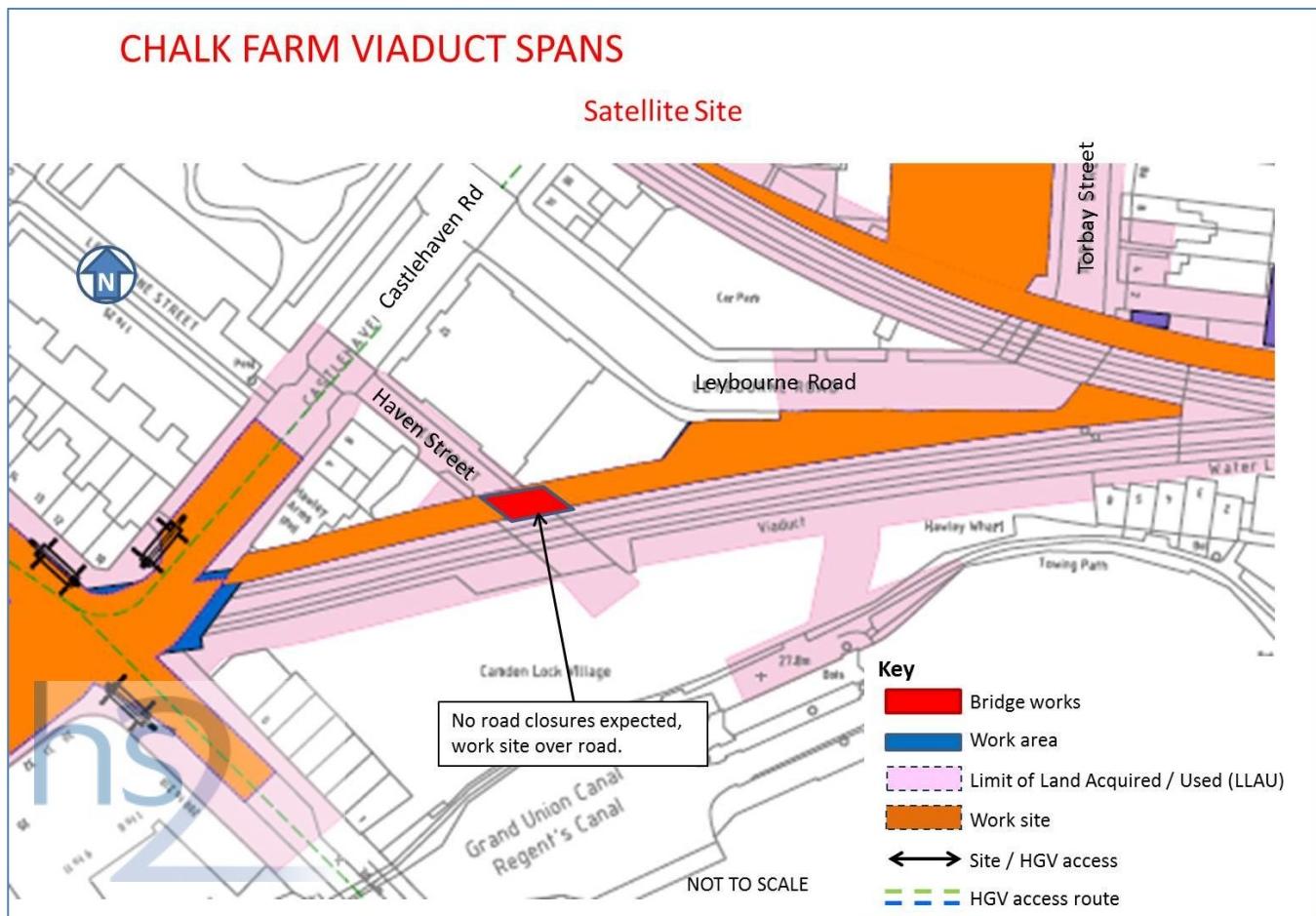
6.5.40 During the closure periods HGV access to the north side of the bridge will remain the same, with egress from this side being from Kentish Town Road right onto the A400 TLRN (Camden Street). HGV access to the south side of the bridge will be from Adelaide Road worksite, right onto A502 Chalk Farm Road, left into Castlehaven Road, continuing into Hawley Road, straight across Kentish Town Road into Camden Street, right into Camden Gardens and right into Kentish Town Road. Egress will be left from Kentish Town Road into Camden Gardens and right into Camden Street, the A400 TLRN. Any turning movements within the site will be under marshal / banksman control.

### **Chalk Farm Viaduct satellite compound**

6.5.41 HGV access to the Chalk Farm Viaduct satellite compound in Haven Road and Torbay Street (Figure 6-97).

6.5.42 is expected to be required only rarely. When necessary it will be from the Adelaide road worksite HGVs, right onto A502 Chalk Farm Road, left into Castlehaven Road and right into Haven Street, or continuing into Hawley Road and right into Torbay Street. Egress from the sites will be via Castlehaven Road, , continuing into Hawley Road, and either straight across Kentish Town Road onto Camden Street, the A400 TLRN, or left into Kentish town Road, left into Prince of Wales Road, left into Haverstock Hill and right into Adelaide Road.

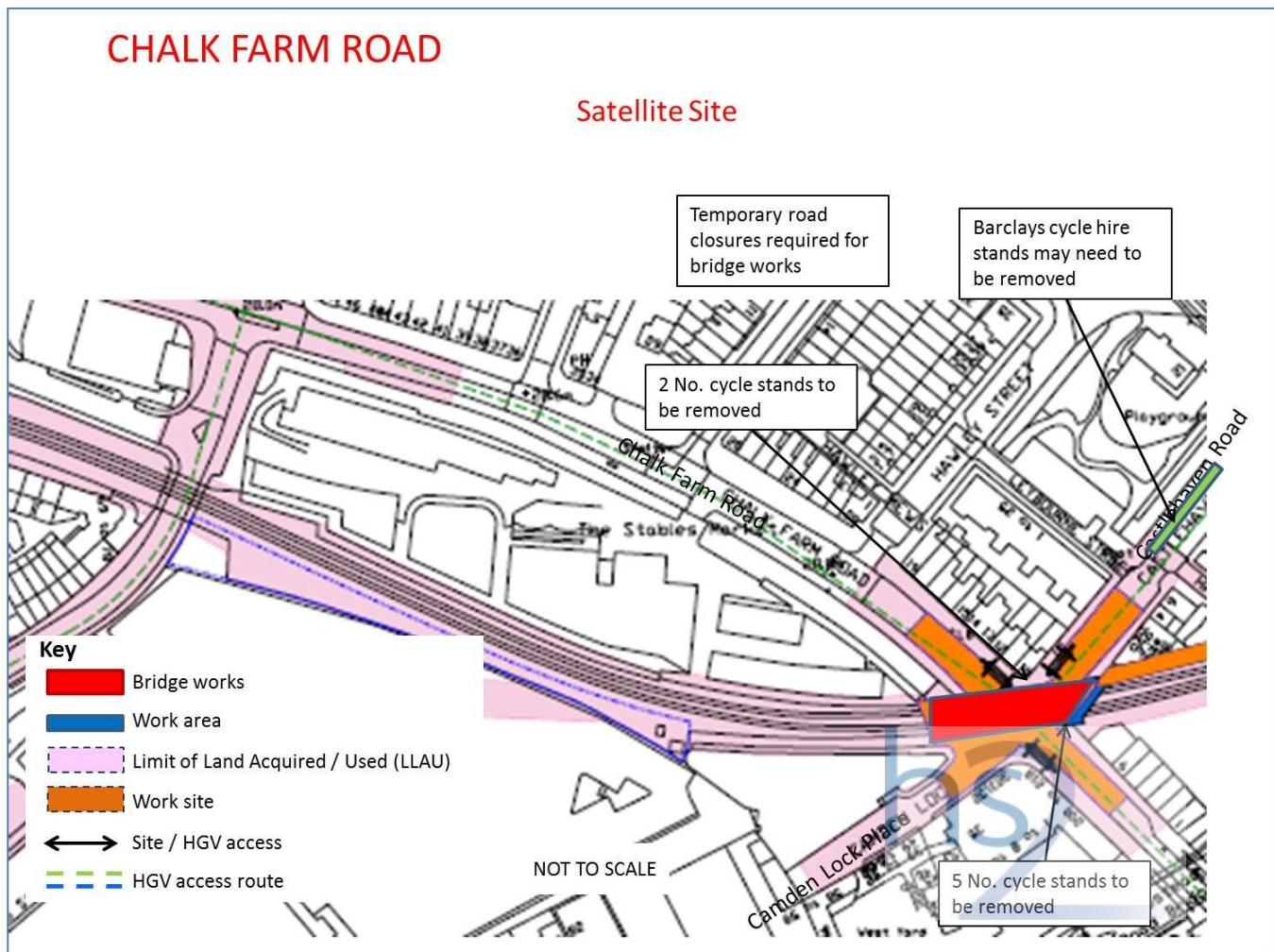
Figure 6-97: Chalk Farm Viaduct satellite compound



### Chalk Farm Road satellite compound

- 6.5.43 This compound would also be served by the HS1-HS2 Link Portal main site compound to the south of Chalk Farm Underground Station (Figure 6-99).
- 6.5.44 To access this compound, HGVs would leave the HS1-HS2 Link Portal worksite eastbound turning left into the Morrisons access road, and right into Chalk Farm Road heading southbound to access the site. For the return trip to the HS1-HS2 Link Portal worksite HGVs would depart the site eastbound on Hawley Road, right onto Kentish Road southbound, right into Hawley Crescent westbound, right onto Chalk Farm Road (passing under the Chalk Farm Road bridge via single lane shuttle-working), left into Morrisons access road and right into the worksite.

Figure 6-98: Chalk Farm Road satellite compound

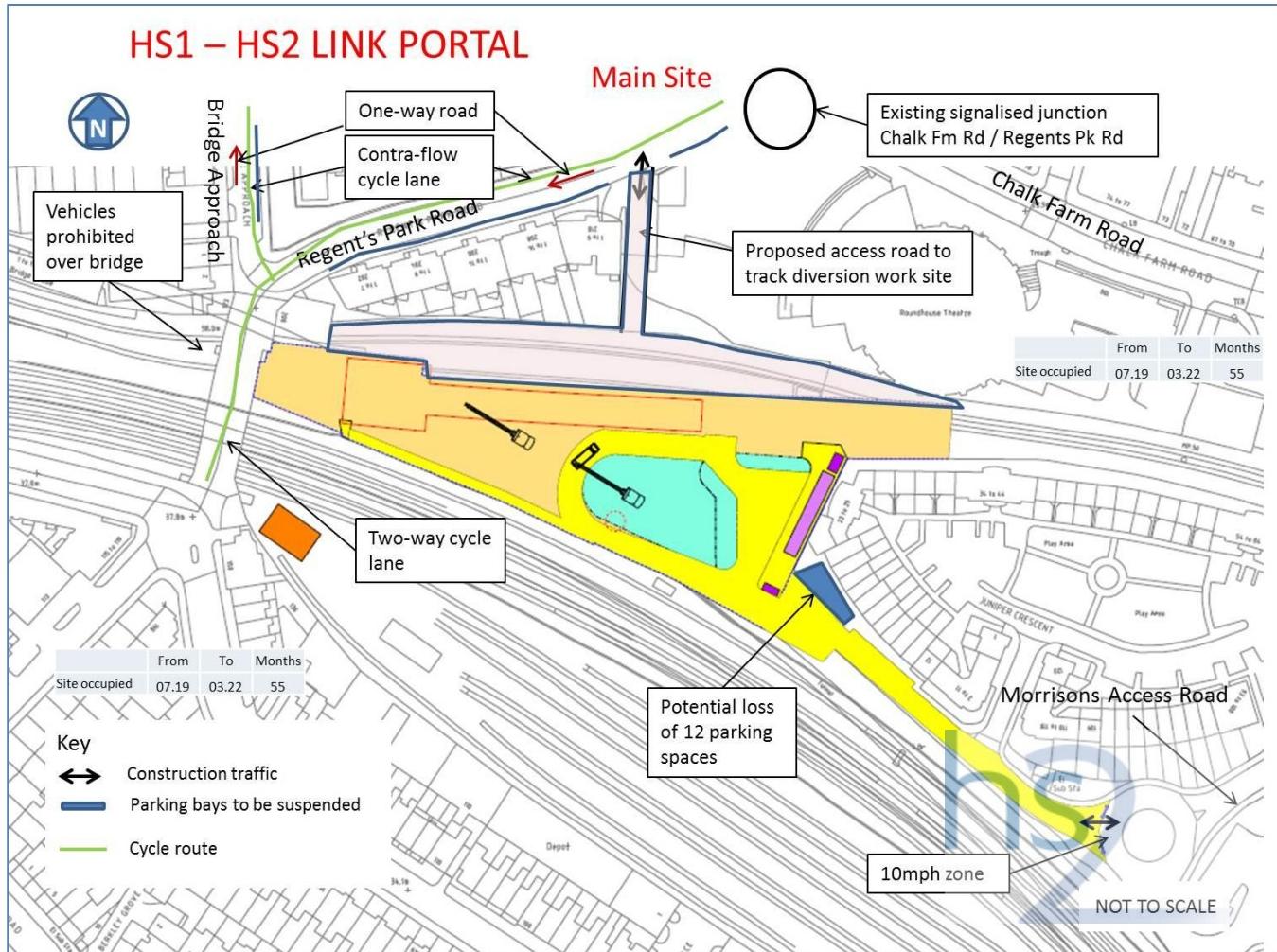


- 6.5.45 It will be necessary to temporarily close the roads for short periods to facilitate the bridge works. During these periods it will be necessary to suspend the one-way working in Castlehaven Road, between Chalk Farm Road and Castlehave Road, and in Chalk Farm Road between Castlehaven Road and Jamestown Road, in order to introduce two-way working.
- 6.5.46 During the periods of road closure HGV access to and egress from the north side of the bridge will be via Chalk Farm Road. Any turning movements within the site will be under marshal / banksman control.
- 6.5.47 During the periods of road closure HGV access to the south side of the bridge will be via the A400 Camden High Street and Chalk Farm Road. Egress from the site will be via Chalk Farm Road southbound, right into Jamestown Road, left into Arlington Road, left into Parkway, left into Kentish Town Road, left into Prince of Wales Road, left into Haverstock Hill and right into Adelaide Road.

## HS1-HS2 Link Portal main site compound

- 6.5.48 HGV access to and egress from the HS1-HS2 Link Portal worksite (Figure 6-99) will be via Adelaide Road, Chalk Farm Road and Morrisons' access road or Regent's Park Road, and Bridge Road.

Figure 6-99: HS1-HS2 Link Portal main site compound



## Adelaide Road vent shaft satellite compound

- 6.5.49 The Adelaide Road compound will be used to manage the construction of the Adelaide Road vent shaft. The compound will be operational for approximately five and a half years over a period of seven years. This will comprise construction of the vent shaft for approximately two and a half years, starting in 2019, followed by connection to the Euston and HS1-HS2 Link tunnels and railway installation works in 2022, continuing for approximately two years.

- 6.5.50 The compound will support approximately 60 workers each day throughout the civil engineering works period and approximately 5 workers each day throughout the railway installations works period. The compound will be accessed via the B509 Adelaide Road. The Adelaide Road vent shaft also requires the permanent realignment of a sewer and water main on Eton Road and installation of power, water and drainage to the facility.
- 6.5.51 Construction vehicles will access the Adelaide Road vent shaft compound on the B509 Adelaide Road from three different directions.
- From the north, HGVs would travel along the A406 North Circular, the A41 southbound towards Swiss Cottage and turn left into B509 Adelaide Road.
  - The HGV route from the south will follow the A40 Western Avenue, over the Marylebone Flyover then left into Gloucester Place and up along the A41 Park Road- Finchley Road, around the A41 Swiss Cottage gyratory and into the B509 Adelaide Road.
  - HGV routes from the east would follow the A4200 Eversholt Road continuing along A400 Camden Road, A502 Chalk Farm Road and Haverstock Hill and turning left into B509 Adelaide Road.

Figure 6-100: Adelaide Road worksite road closure

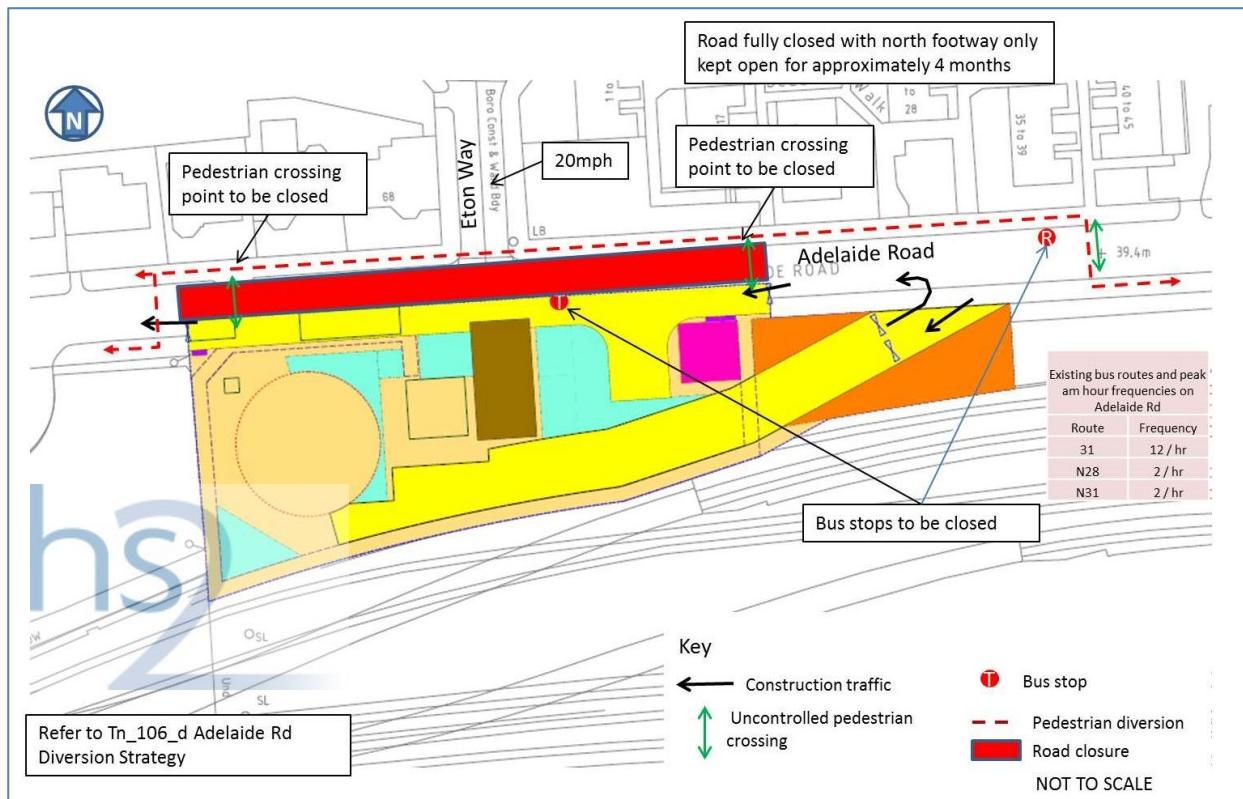
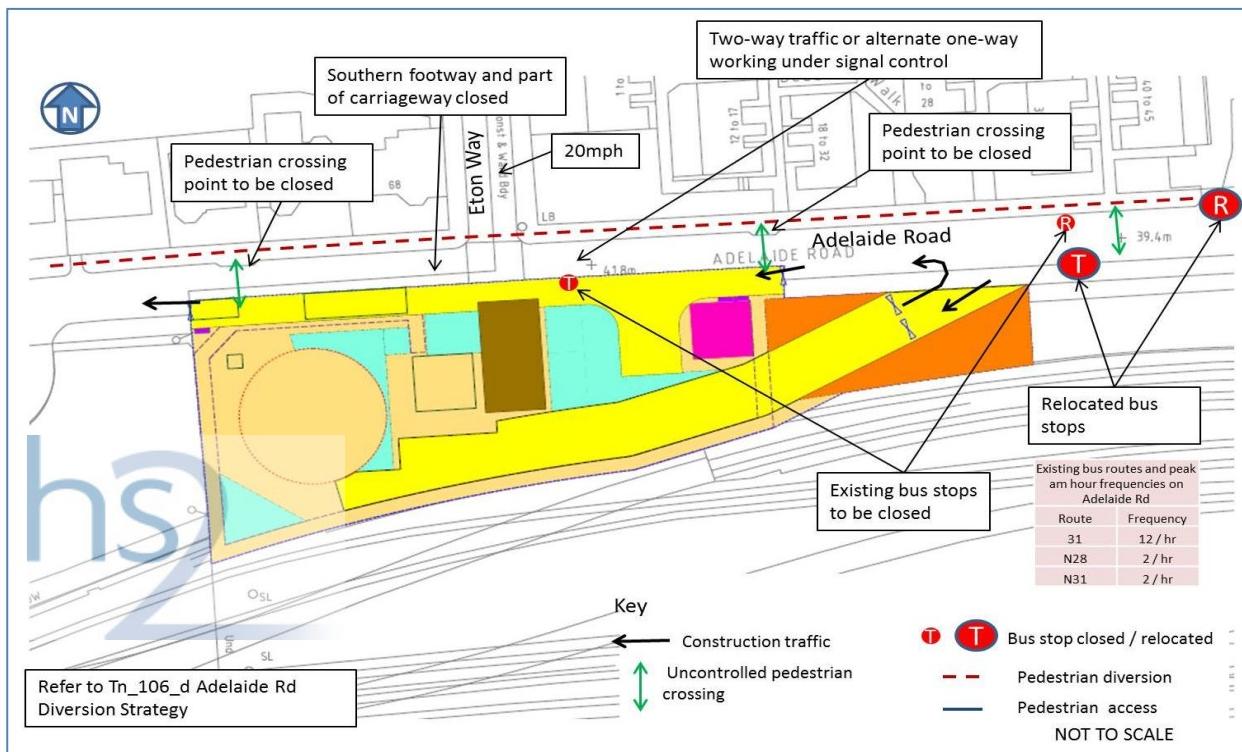


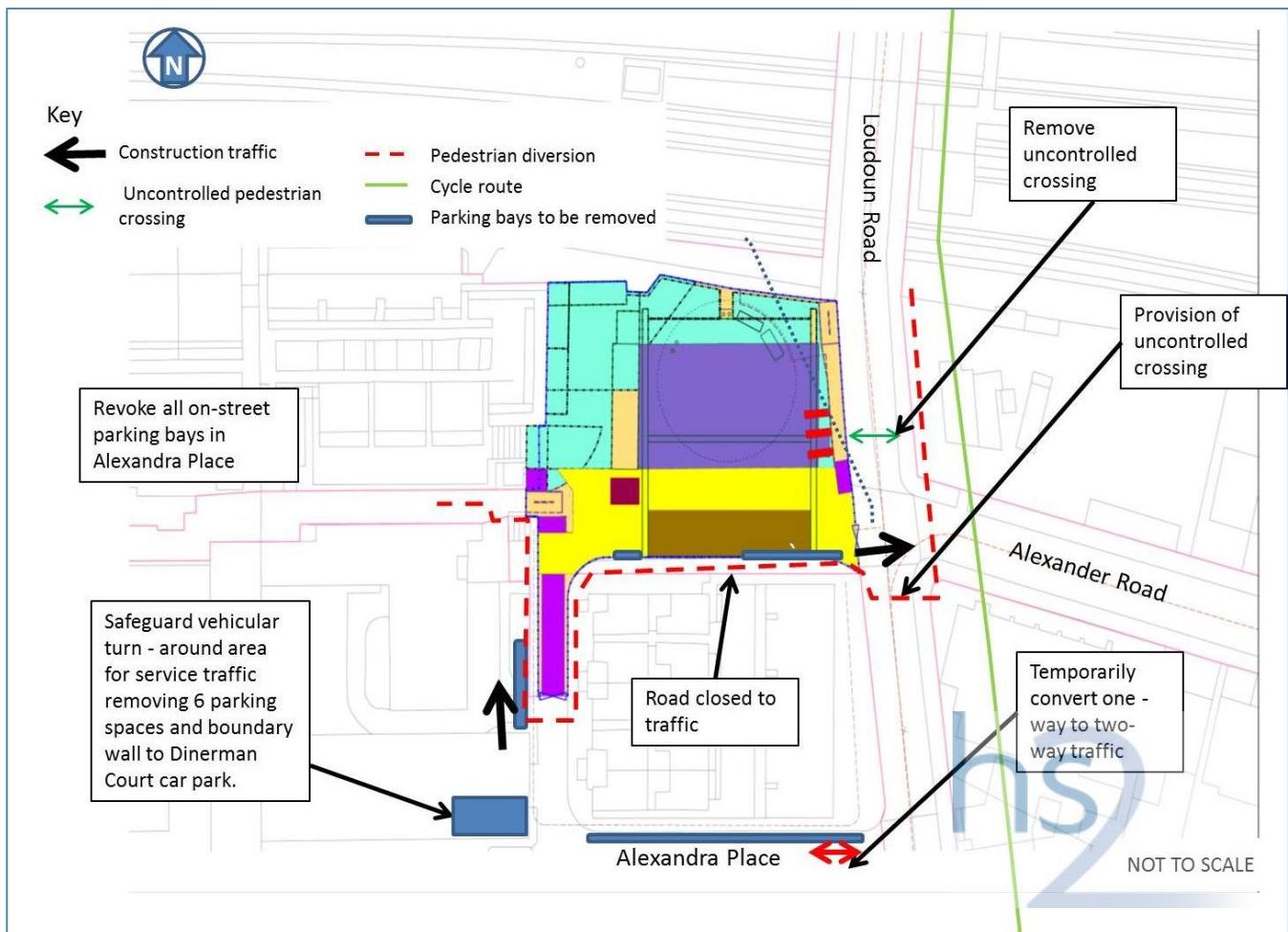
Figure 6-101: Adelaide Road worksite two-way or alternate one-way working under signal control



### Alexandra Place vent shaft satellite compound

- 6.5.52 The Alexandra Place compound will be used to manage the construction of the Alexandra Place vent shaft. The compound will be operational for approximately five and a half years in total. This will comprise construction of the vent shaft for approximately three and a half years starting in 2018. Railway installation works will take place for approximately two years, starting in 2023. The site will support approximately 60 workers each day throughout the civil engineering works period and support approximately 5 workers each day throughout the railway installations works period. Access into the compound is from Alexandra Place.
- 6.5.53 Construction vehicles will be able to enter the Alexandra Place vent shaft compound starting from the A41 Finchley Road, turning into B509 Hilgrove Road, left into Alexandra Road, left into Loudon Road and right into Alexandra Place.
- 6.5.54 Construction of the Alexandra Place vent shaft will require the permanent realignment of a sewer on Alexandra Road, permanent realignment of a water distribution main on Loudoun Road; and installation of power, water and drainage supplies to the Alexandra Place vent shaft.

Figure 6-102: Alexandra Place worksite



### Camden Carriage Sidings satellite compound

- 6.5.56 The Camden carriage sidings compound will be used for modifications to the existing railway network at Euston. The compound will be accessed via an existing Network Rail (NR) entrance off Gloucester Avenue; and support approximately 10 workers each day throughout the existing railway modification works period. It will comprise alterations to the existing railway sidings.
- 6.5.57 Construction vehicles will access the Camden Carriage sidings compound on Gloucester Avenue via the A41 Finchley Road /A41 Park Road roundabout, turning into A5205 Prince Albert Road, left onto A420 Parkway, left into Regent's Park Road , right into Princess Road and continue on to Gloucester Avenue.
- 6.5.58 Construction traffic movements related to the work at the Camden carriage sidings are expected to be negligible and will be mostly confined to night time, weekends and bank holidays.

### *Traffic Management, Road Closures and Diversions*

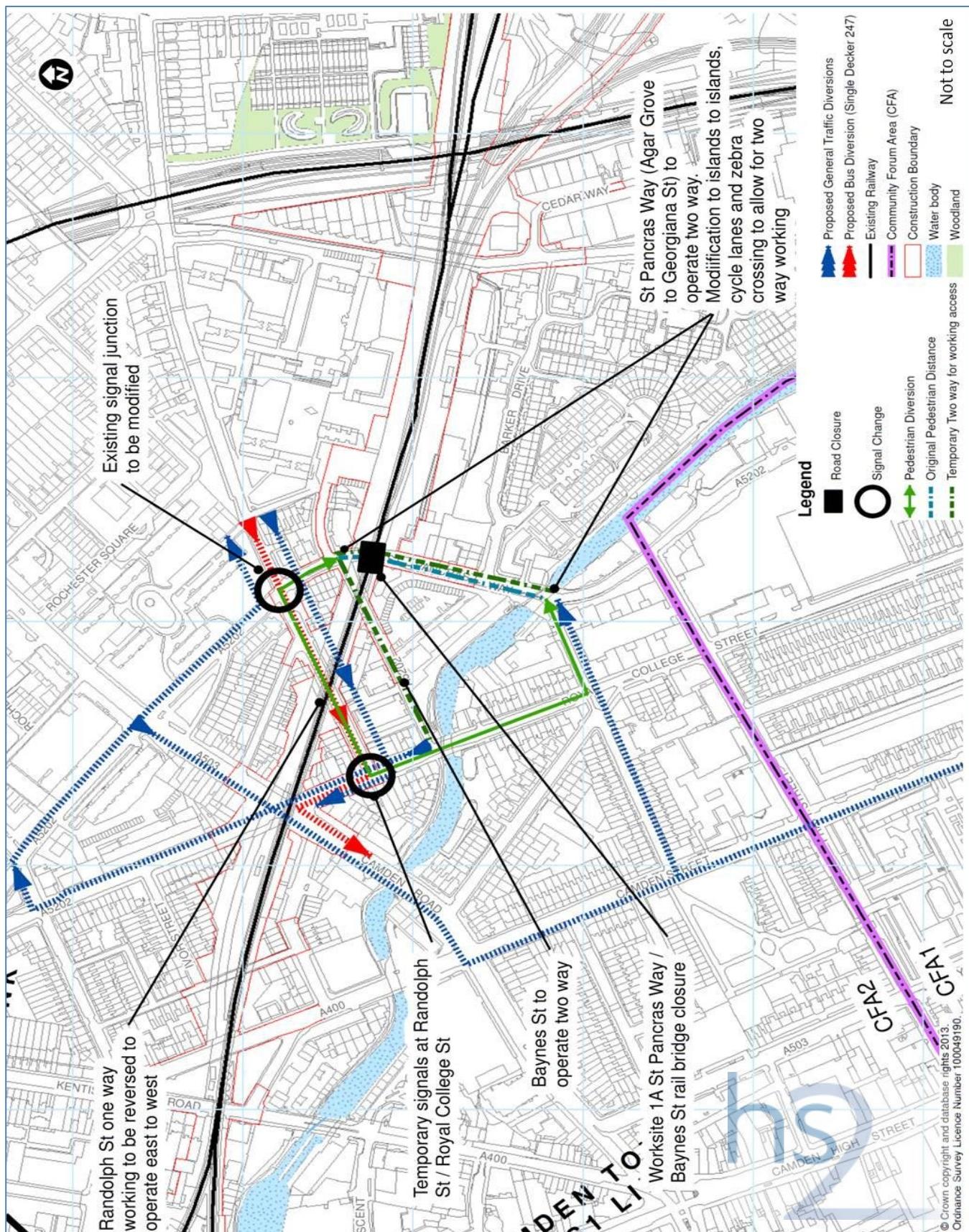
- 6.5.59 During the bridge replacement periods, it is envisaged that streets intersecting the HS1-HS2 Link at these locations will be temporarily fully or partially closed to all traffic, requiring diversions for buses and cyclists and alternative routes for pedestrians. This will typically be for weekend periods at each site for bridge replacement works. However, highway closures at the Randolph Street worksite are likely to extend for more than six weeks. Likewise, it is possible that the Chalk Farm Road full road closure will extend for over four weeks but it is more likely to be as short as two weeks. For the purposes of assessment, it has been assumed that the closure will last for over four weeks. It is expected that not more than one main road will need to be closed at any one time. However, with utilities diversions it is possible that this could increase to two partial road closures at any one time.
- 6.5.60 The direction of one-way working on some roads or conversion from one-way working to two way working (or vice-versa) will be necessary. Some sections of Baynes Street, Randolph Street, Castlehaven Road and Camden Street will require conversion to two-way working to maintain access and servicing. In order to implement a short-term bus diversion for route 274, it will also be necessary to convert Randolph Street from one-way working eastbound to one-way working westbound for a period of around four weeks. Some junctions will also require physical modification and temporary new permitted turns to be introduced. Local traffic management will minimise local diversionary impacts on traffic while these preliminary enabling works are carried out.
- 6.5.61 All road closures are temporary and routes will be reinstated on completion of the works at each worksite.
- 6.5.62 There will be temporary full and partial road closures on the A5202 St Pancras Way, Baynes Street, Randolph Street, A503 Camden Road, A5202 Royal College Street, Torbay Street/Leybourne Street, A502 Castlehaven Road and A502 Chalk Farm Road. Partial road closures only are proposed on the A400 Camden Street, A400 Kentish Town Road and the access road to Juniper Crescent. Traffic diversion lengths will vary according to the highway closure location and may be as much as 0.5km, or a little over one minute additional travel time (assuming a constant 20mph speed) as a result of the Chalk Farm Road closure, and is shown below. Diversion strategies for this and other bridge locations are shown in tables 15-20 and figures 21-26 below.

## St Pancras Way and Baynes Street (north and south)

Table 6-79: Road closures and diversions around the St Pancras Way and Baynes Street (north and south) worksite

Name	Location	Diversion route	Approximate length of diversions	Programme	Duration
St Pancras Way southbound general traffic and cyclists	Camden Road to Crowndale Road	Camden Road, Camden Street, Crowndale Road (local access to St Pancras Way from Camden Street via Georgiana Street)	209m	Q2 - Q3 2018 and Q2 2021 - Q1 2022	Under four weeks in each phase
St Pancras Way southbound general traffic and cyclists	Agar Grove to Crowndale Road	Agar Grove (west of St Pancras Way, one-way reversed), Randolph Street, Royal College Street, Camden Road, Camden Street, Crowndale Road (local access to St Pancras Way from Camden Street via Georgiana Street)	994m	Q2 - Q3 2018 and Q2 2021 - Q1 2022	Under four weeks in each phase
St Pancras Way southbound for westbound buses and cyclists	Agar Grove to Camden Road	Agar Grove (west of St Pancras Way, one-way reversed), Randolph Street, Royal College Street	-65m		
St Pancras Way pedestrians (both directions)	Agar Grove to Georgiana Street	Agar Grove (west of St Pancras Way), Randolph Street, Royal College Street, Georgiana Street	191m	Q2 - Q3 2018 and Q2 2021 - Q1 2022	Under four weeks in each phase

Figure 6-103: St Pancras Way / Baynes Street diversion strategy

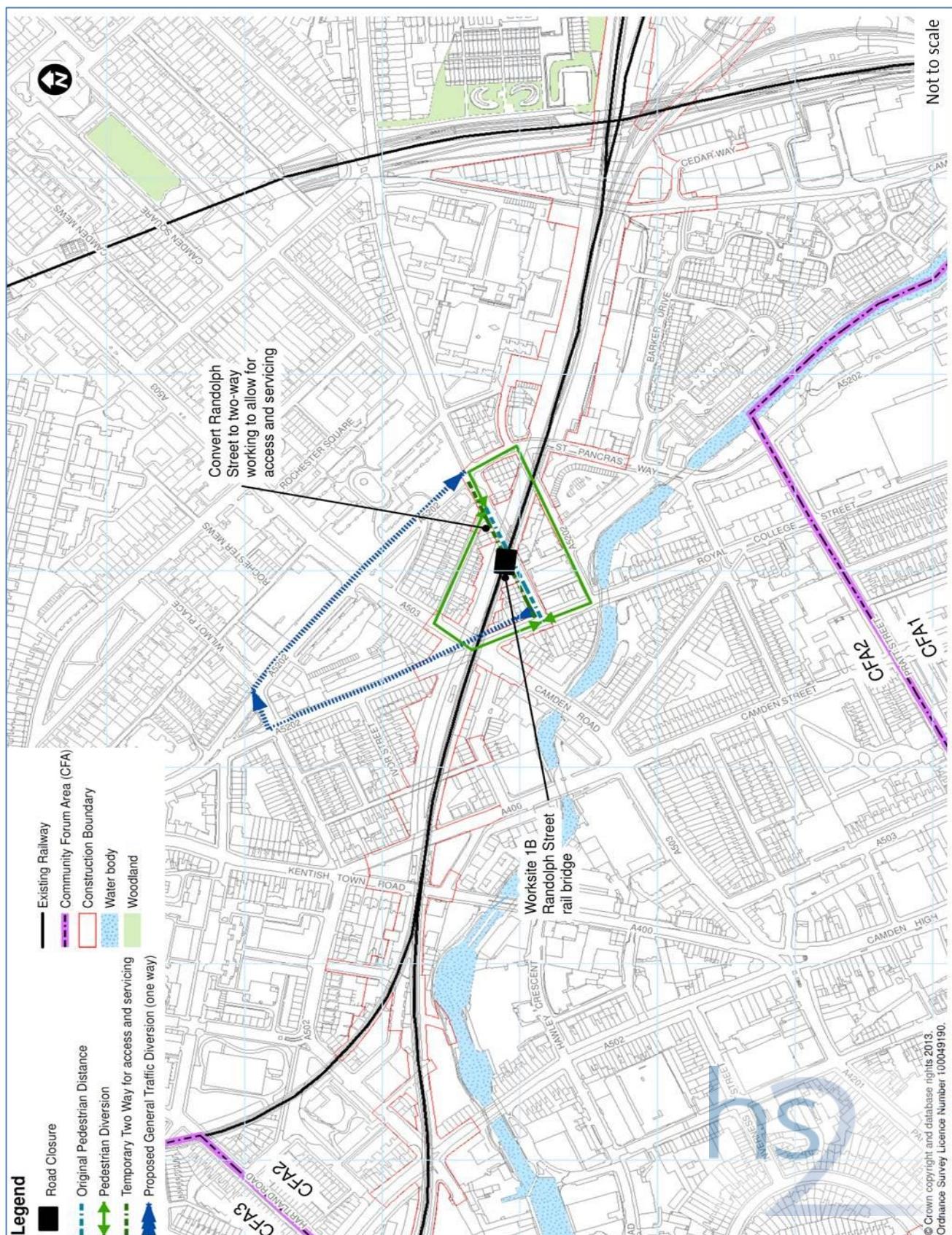


## Randolph Street (north and south)

Table 6-80: Road closures and diversions around the Randolph Street (north and south) worksite

Name	Location	Diversion route	Approximate length of diversions	Programme	Duration
Randolph Street/Agar Grove eastbound general traffic	Royal College Street to St Pancras Way	Royal College Street, St Pancras Way	445m	Q1 - Q4 2018 and Q1-Q4 2021	Under four weeks in each phase
Randolph Street/Agar Grove pedestrians	Royal College Road to St Pancras Way	Royal College Street, Baynes Street, St Pancras Way	204m	Q1 - Q4 2018 and Q1-Q4 2021	Under four weeks in each phase
Randolph Street cyclists	Royal College Road to Rousden Street	Royal College Street, Camden Street, Rousden Street assuming walking on Camden Street	113m	Q1 - Q4 2018 and Q1-Q4 2021	Under four weeks in each phase

Figure 6-104: Randolph Street diversion strategy

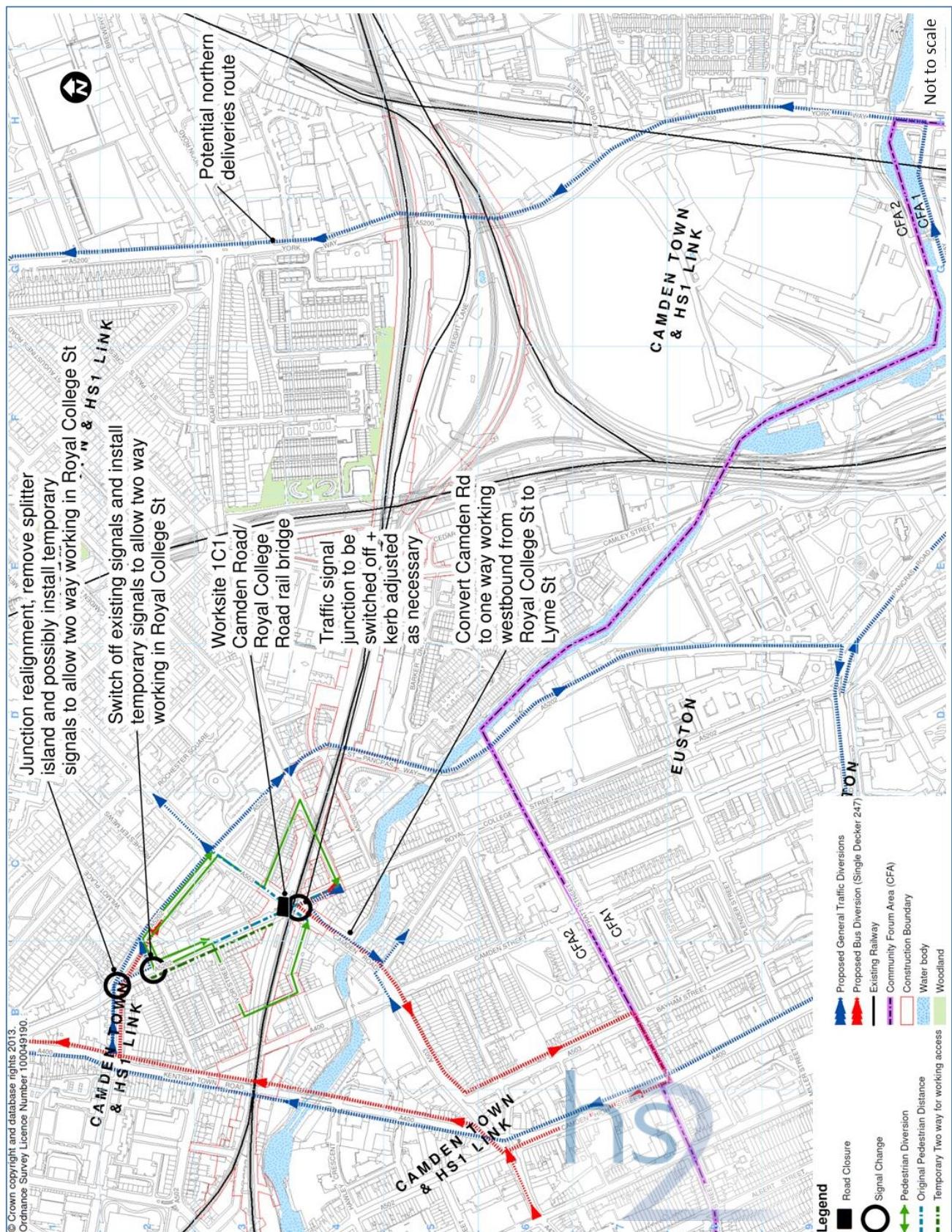


## Camden Road (north)

Table 6-81: Road closures and diversions around the Camden Road (north) worksite

Name	Location	Diversion route	Approximate length of diversions	Programme	Duration
Royal College Street general traffic	Pancras Road to Kentish Town Road	Crowndale Road, Camden High Street, Kentish Town Road	421m	Q3 2018 - Q1 2019	Under four weeks
Royal College Street buses	Camden Road to Kentish Town Road	Camden Road, Bayham Street, Pratt Street, Camden High Street, Kentish Town Road	1023m	Q3 2018 - Q1 2019	Under four weeks
Royal College Street	Pancras Street to Camden Road westbound	Pancras Way, Crowndale Road, Camden High Street, Kentish Town Road, Farrier Street, St Pancras Way	881m	Q3 2018 - Q1 2019	Under four weeks
Camden Road south-westbound general traffic	St Pancras Way to Parkway	St Pancras Way, Pancras Road, Crowndale Road, Camden High Street	278m	Q3 2018 - Q1 2019	Under four weeks
Camden Road north-eastbound general traffic	Camden High Street to Ct Pancras Way	Kentish Town Road, Farrier Street, St Pancras Way	1896m	Q3 2018 - Q1 2019	Under four weeks
Camden Road or Royal College Street	Point closure	Agar Street, Rousden Street	215	Q3 2018 - Q1 2019	Under four weeks

Figure 6-105: Camden Road (north) diversion strategy

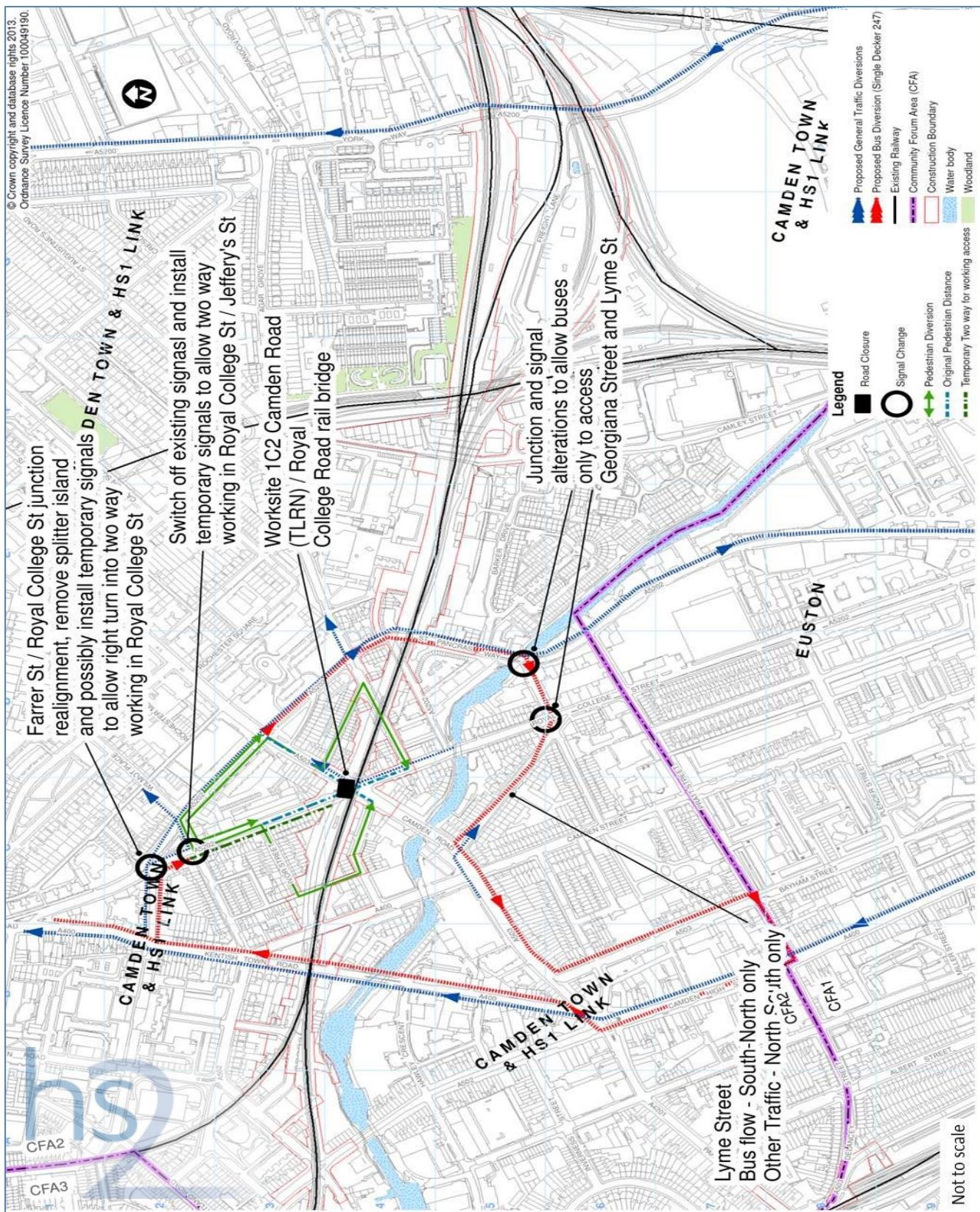


## Camden Road (south)

Table 6-82: Road closures and diversions around the Camden Road (South) worksite

Name	Location	Diversion route	Approximate length of diversions	Programme	Duration
Royal College Street general traffic	Pancras Road to Kentish Town Road	Crowndale Road, Camden High Street, Kentish Town Road	421m	Q1 - Q3 2022	Under four weeks
Royal College Street buses	Lyme Street to Kentish Town Road	Lyme Street, Bayham Street, Pratt Street, Camden High Street, Kentish Town Road	994m	Q1 - Q3 2022	Under four weeks
Royal College Street general traffic	Pancras Street to Camden Road westbound	Pancras Way, Crowndale Road, Camden High Street, Kentish Town Road, Farrier Street, St Pancras Way	881m	Q1 - Q3 2022	Under four weeks
Camden Road south-westbound general traffic	St Pancras Way to Parkway	St Pancras Way, Pancras Road, Crowndale Road, Camden High Street	278m	Q1 - Q3 2022	Under four weeks
Camden Road north-eastbound general traffic	Camden High Street to Ct Pancras Way	Kentish Town Road, Farrier Street, St Pancras Way	1896m	Q1 - Q3 2022	Under four weeks
Camden Road or Royal College Street pedestrians and cyclists	Point closure	Agar Street, Rousden Street	215	Q1 - Q3 2022	Under four weeks

Figure 6-106: Camden Road (south) diversion strategy



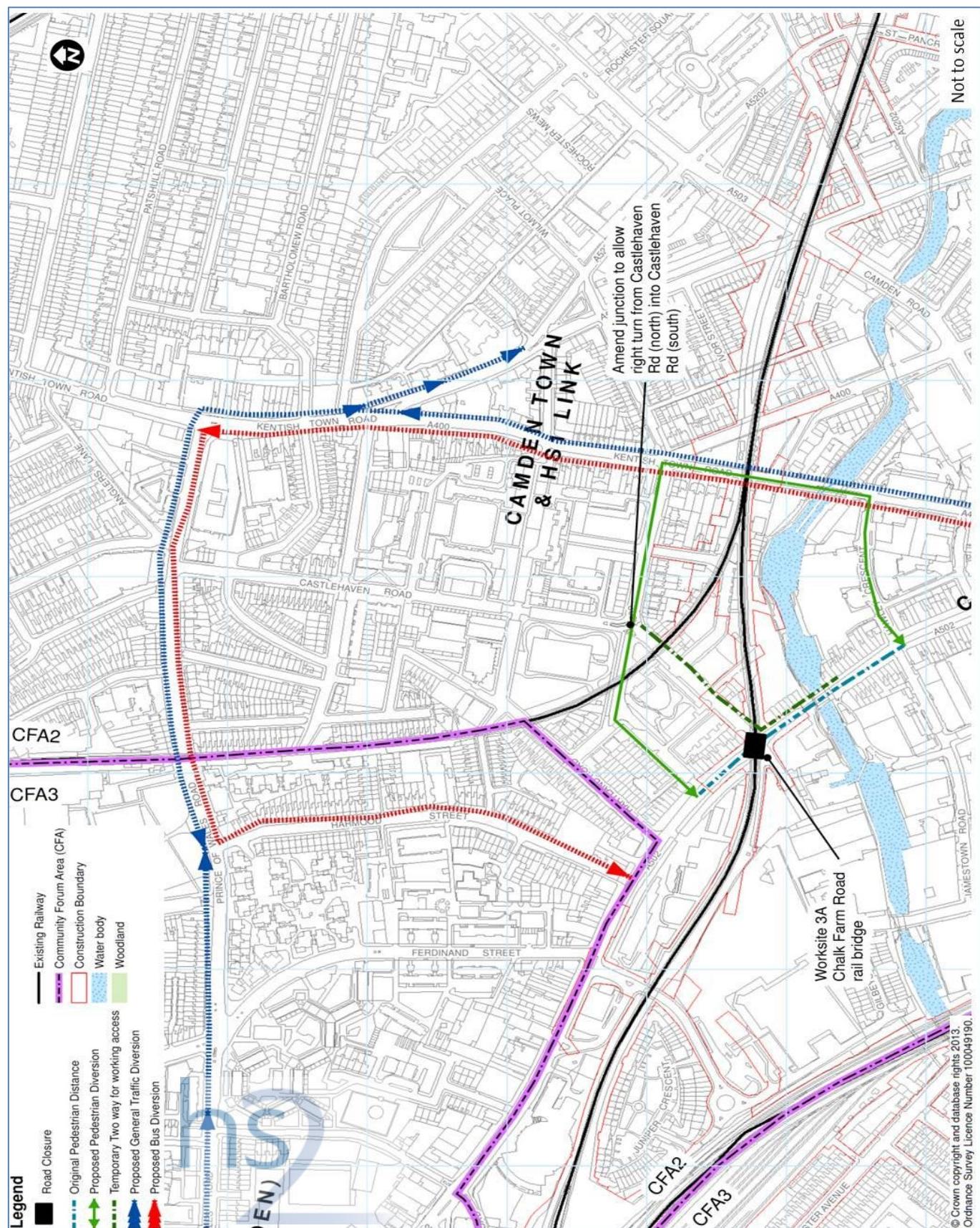
## Chalk Farm Road bridge worksite

- 6.5.63 Bridge works and potential road closures associated with the Chalk Farm Road bridge replacement works and serviced by the Chalk Farm Road satellite compound are expected to represent the most severe scenario in terms of overall scale and duration of disruption to the overall highway network in the local area. This scenario has been assessed to establish the significance of impacts.

Table 6-83: Road closures and diversions around the Chalk Farm Road bridge worksite

Name	Location	Diversion route	Approximate length of diversions	Programme	Duration
Chalk Farm Road north-westbound general traffic	Camden Road to Prince of Wales Road	Kentish Town Road, Prince of Wales Road	598m	Q4 2018 - Q3 2022	Under four weeks
Chalk Farm Road north-westbound buses	Camden Road to Harmood Street	Kentish Town Road, Prince of Wales Road, Harmood Street	1123m	Q4 2018 - Q3 2022	Under four weeks
Chalk Farm Road pedestrians and cyclists	Hawley Crescent to Hawley Street	Hawley Crescent, Kentish Town Road, Hawley Road, Castlehaven Open Space footpath, Hawley Street	513m	Q4 2018 - Q3 2022	Under four weeks

Figure 6-107: Chalk Farm Road bridge Diversion Strategy for Traffic, Buses & Pedestrians



6.5.64 Construction activities will result in the loss of some car and cycle parking spaces for up to four weeks at a time during the phase one and phase three road closures but these will be replaced once the individual construction work at each location is completed. The exception to this will be at Randolph Street, Rousden Street and Chalk Farm Road where a limited amount of local car parking is likely to be suspended for periods in excess of four weeks during the phase one and phase three road closures.

6.5.65 Access to properties will be maintained, including emergency access and detailed as part of construction site compound design.

### **Adelaide Road worksite (CFA3)**

6.5.66 There will be a single road closure at Adelaide Road for a period of four months. The location of this closure is shown in Figure 6-100 and Figure 6-101. With the exception of this closure, it is expected that two-way traffic, or alternate shuttle working as a minimum, can be maintained for the duration of the construction period. For the period of closure of Adelaide Road, the proposed diversion route is described in Table 6-84 and shown in Figure 6-107. This diversion will apply to general traffic, buses and cyclists. Cyclists will also have the option of using Adelaide Road but dismounting and walking past the worksite along the northern footway which will remain open throughout the works.

Table 6-84: Road closures and diversions required for construction in the Primrose Hill to Kilburn (Camden) area

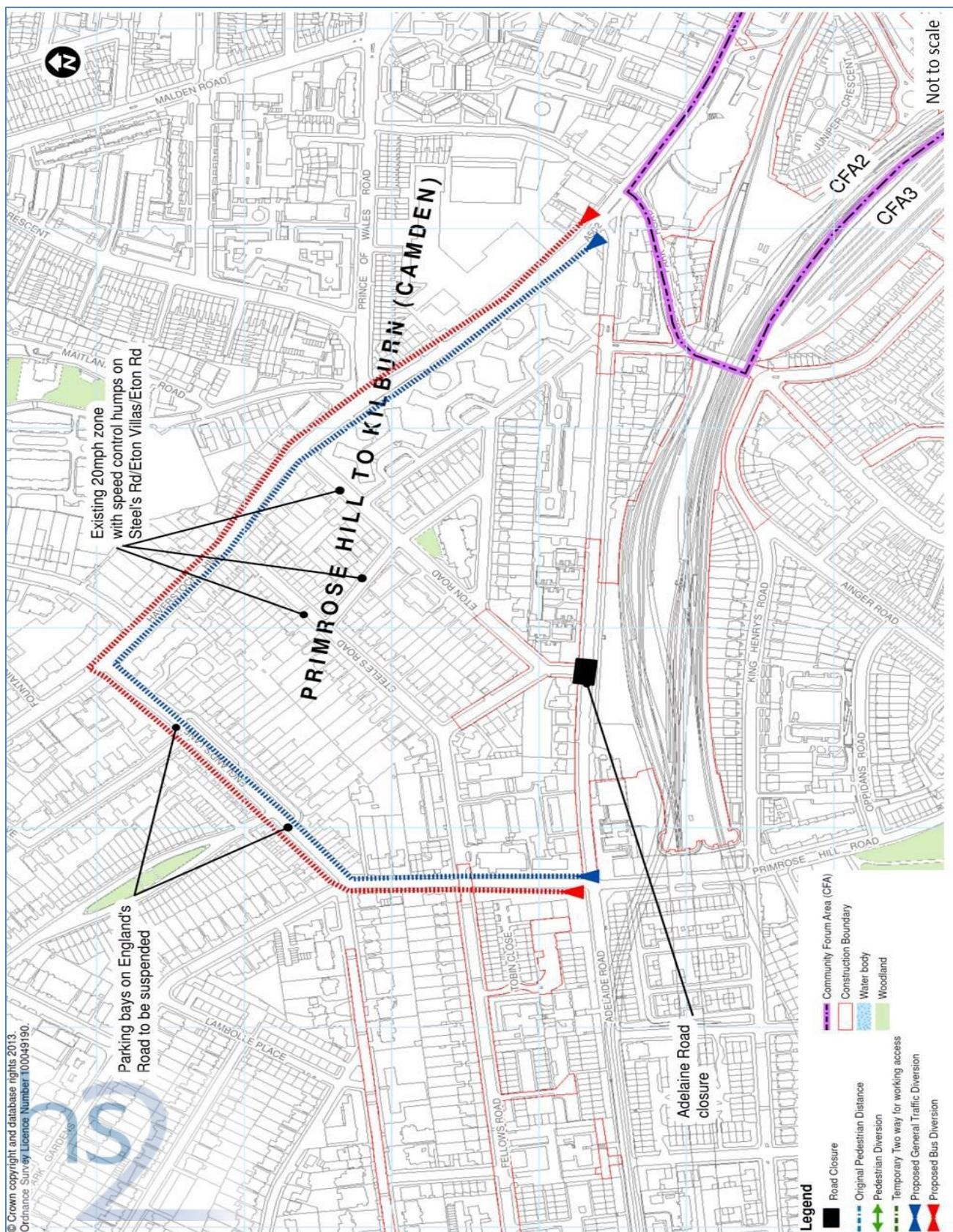
Name	Location	Diversion route	Approximate length of diversions	Programme	Duration
Adelaide Road general traffic, buses and cyclists	Haverstock Hill to Primrose Hill Road (both directions)	Haverstock Hill, England's Lane, Primrose Hill Road	461m	Q3 2019 - Q2 2022	Four months

6.5.67 The full closure of the B509 Adelaide Road to traffic will require the introduction of a diversion route of a net increase of 461m for bus routes 31, N31 and N28 via Primrose Hill Road, England's Lane and Haverstock Hill. Under the temporary partial closure condition, shuttle-working (i.e. alternating one-way working) will remove the need for any bus diversions.

6.5.68 During full closure of the B509 Adelaide Road the suspension of bus stops serving bus routes 31, N31 and N28 will be necessary, with alternative bus stops over 100m away. During the partial closure the bus stops would be temporarily relocated to the positions shown in Figure 6-101.

6.5.69 No watercourse diversions will be required.

Figure 6-108: Proposed traffic diversion around the Adelaide Road temporary closure



### Alexandra Place worksite (CFA3)

- 6.5.70 Works at the Alexandra Place worksite will require the temporary closure of the northern arm, and part of the western arm, of Alexandra Place, for a duration of up to 2.5 years. This will affect very low numbers of vehicles seeking local access, with diversion via the southern arm of Alexandra Place (converting the road to two-way operation). No bus services are affected.
- 6.5.71 Pedestrians will be diverted as indicated on Figure 6-102, with the relocation of an uncontrolled crossing point on Loudoun Road and use of a flight of 10 steps to gain access to Rowley Way. This route gives a net diversion distance of 107m. Cyclists would follow the same diversion as general traffic or dismount and walk with pedestrians.
- 6.5.72 During the works it will be necessary to remove 17 parking spaces from Alexandra Place.
- 6.5.73 No permanent diversions of roads will be required within the Primrose Hill to Kilburn (Camden) area.
- 6.5.74 Bus route diversions generally follow the same routes as general traffic diversions. Where they do not, the different diversion routes are noted in the tables above.

#### *PRoW closures and diversions*

- 6.5.75 Construction activities will result in disruption to pedestrian and cycle routes through and around the worksites resulting in delays, increased journey times and changes in journey ambience following the introduction of temporary traffic diversions. Local traffic management will be introduced to minimise local diversionary impacts on pedestrians (including routes to schools) and cyclists while works are carried out but some of these will be substantial; particularly for some pedestrians using footways within the highway.
- 6.5.76 The PRoW diversion routes shown on the same drawings as the vehicle diversions above, and are also noted in the tables and text above.

### **Camden and HS1 Link (CFA2) and Primrose Hill to Kilburn (CFA3) construction impacts**

#### *Key construction transport issues*

- 6.5.77 This section provides an overview of the impacts of the proposed construction activity for the section of HS2 that passes through CFA2 and CFA3.
- 6.5.78 The temporary traffic and transport impacts will arise from:
- delivery of construction materials and plant and removal of construction waste and excavated material (from the shaft sites);
  - utilities diversions;

- worker arrival and departure;
- disruption to rail services due to short-term possessions;
- diversions applying to all vehicle traffic and to pedestrians; and
- construction activities and traffic diversions from adjacent CFAs.

- 6.5.79 The construction period for the whole route is programmed for 2017 to 2026. The base year for assessment of construction impacts has been chosen at 2021. The forecast peak construction activities have then been overlaid on 2021 with, as relevant, overlapping activities (in both area of importance and timing) considered in combination.
- 6.5.80 The main impacts during the construction phase relate to changes to the highway network due to partial or full road closures and other restrictions which will affect highway vehicles, buses, taxis, cyclists and pedestrians.
- 6.5.81 Levels of traffic generated by construction activities at the compounds in this area throughout the construction period are expected to be small in comparison to the wider area traffic flows. While there will be localised higher proportional increases in HGV movements in the immediate vicinity of the sites, the access arrangements and controls imposed by the draft CoCP will mean that the levels of construction traffic are not expected to have a substantial impact on roads around the compounds. For the main construction compounds such as Camley Street and the HS1-HS2 link Portal, HGVs are also expected to form a relatively small proportion of overall traffic flows except in the immediate proximity of the compounds.
- 6.5.82 The majority of tunnelling activities will be managed at Old Oak Common (see CFA4). However, there will be movement of some excavated material via the HS1-HS2 link Portal main compound during normal working hours. For further information refer to CFA4 Volume 2. It is envisaged that the A40/A41/Adelaide Road/A502 Chalk Farm Road will provide the primary HGV access and egress routes for the construction compounds.
- 6.5.83 The assessment includes the cumulative impacts of planned development during construction by taking this into account within the background traffic growth.
- 6.5.84 Trip generation is set out in Table 6-78 above. Trips have been assigned to the road network according to the routes set out in the drawings in series CT-05.

### *Strategic and local road network traffic flows*

- 6.5.85 In order to assess the different combinations of enabling works, utility diversions and construction lorry movements through the construction programme, the impacts have been considered for three distinct temporal phases as previously identified and are summarised below:
- Scenario 1, 2017, corresponding to early enabling work and highway utilities

with around 70% of the maximum construction traffic from CFA1;

- Scenario 2, 2019, corresponding to the main station works together with peak month (i.e. the maximum total) of construction traffic. As set out in the Constriction Activities section above; and
- Scenario 3 2021, with the majority of enabling works completed and only short term highway intervention in CFA2.

6.5.86 For each scenario, there are different levels of construction traffic, together with different patterns of road closures and traffic management impacting the highway network.

6.5.87 The figures below set out flows on key roads in CFA2 and CFA3, comparing 2021 baseline flows with 2021 construction case flows for the three test scenarios.

6.5.88 Construction of the Proposed Scheme will result in changes in traffic flows and delays to vehicle users in the area due to increased traffic flows from construction activity in the neighbouring CFAs 1 and 4 in addition to diversionary impacts of the closure of Chalk Farm Road and Adelaide Road.

6.5.89 In the model output plots green bands refer to decreasing traffic flows and red bands refer to increasing traffic flows

6.5.90 In order to capture flow changes around Euston and further north, three screenlines were defined, one running east-west immediately south of Euston Road, one east-west immediately north of Euston Road and one further north running east-west between Caledonian road and A5 Kilburn High Road.

6.5.91 Within CFA 2 and 3 the Camden screenline is particularly relevant, and this is reported in the tabulations that follow the model output plots for each scenario.

6.5.92 The results for the other two screenlines covering the main area around Euston Station are reported in CFA 1.

### *Highway impacts (Scenario 1, 2017)*

6.5.93 As explained above, Scenario 1 reflects the early enabling work and utility works on the highway, together with approximately 70% of the maximum construction traffic.

6.5.94 The diversion impacts for the AM and PM peak hours are illustrated in Figure 6-109 and Figure 6-110 respectively.

Figure 6-109: AM peak hour (08:00 - 09:00) traffic flow impacts - Scenario 1 vs 2021 future baseline (PCUs)

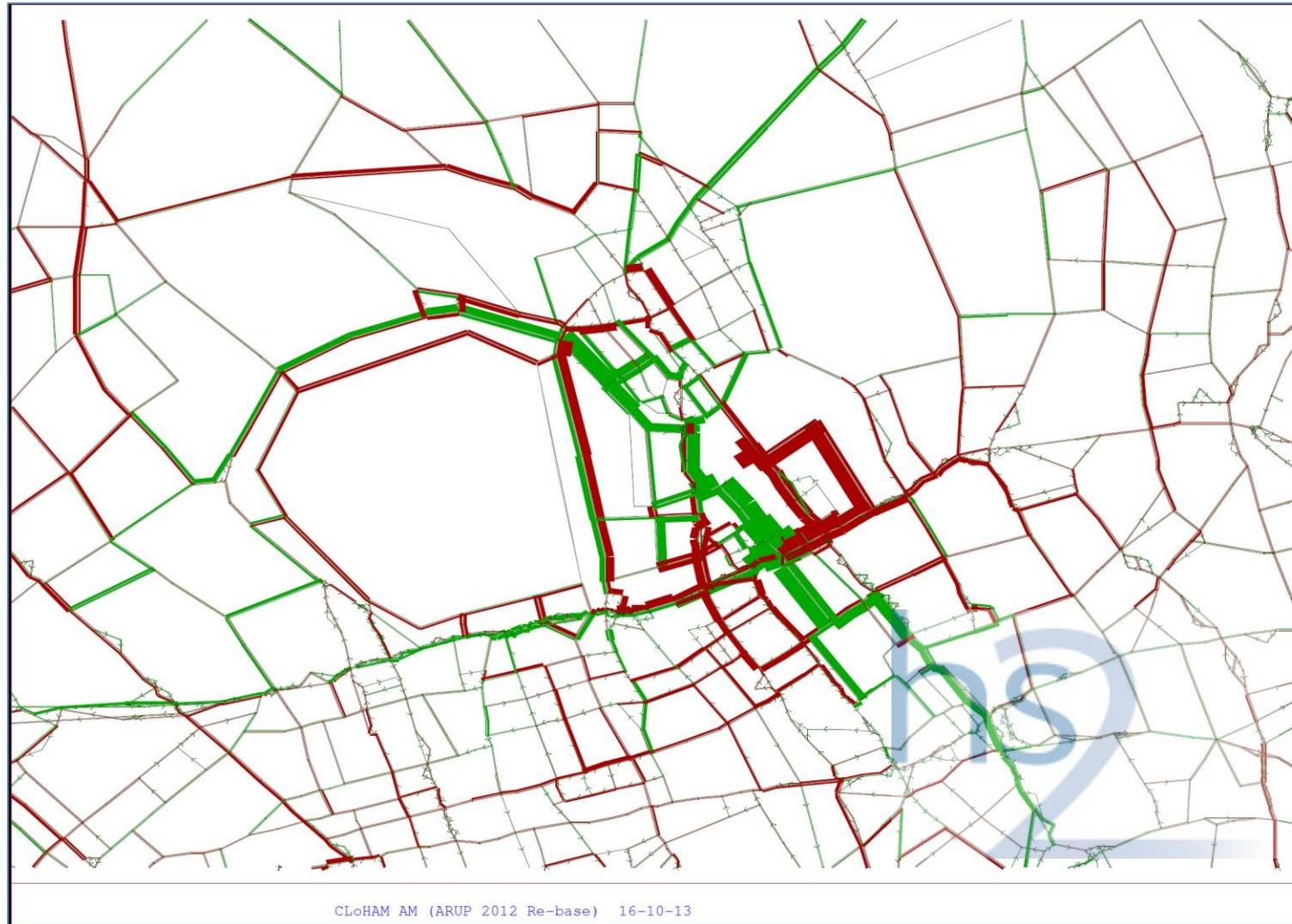


Figure 6-110: PM peak hour (17:00 - 18:00) traffic flow impacts - Scenario 1 vs 2021 future baseline (PCUs)

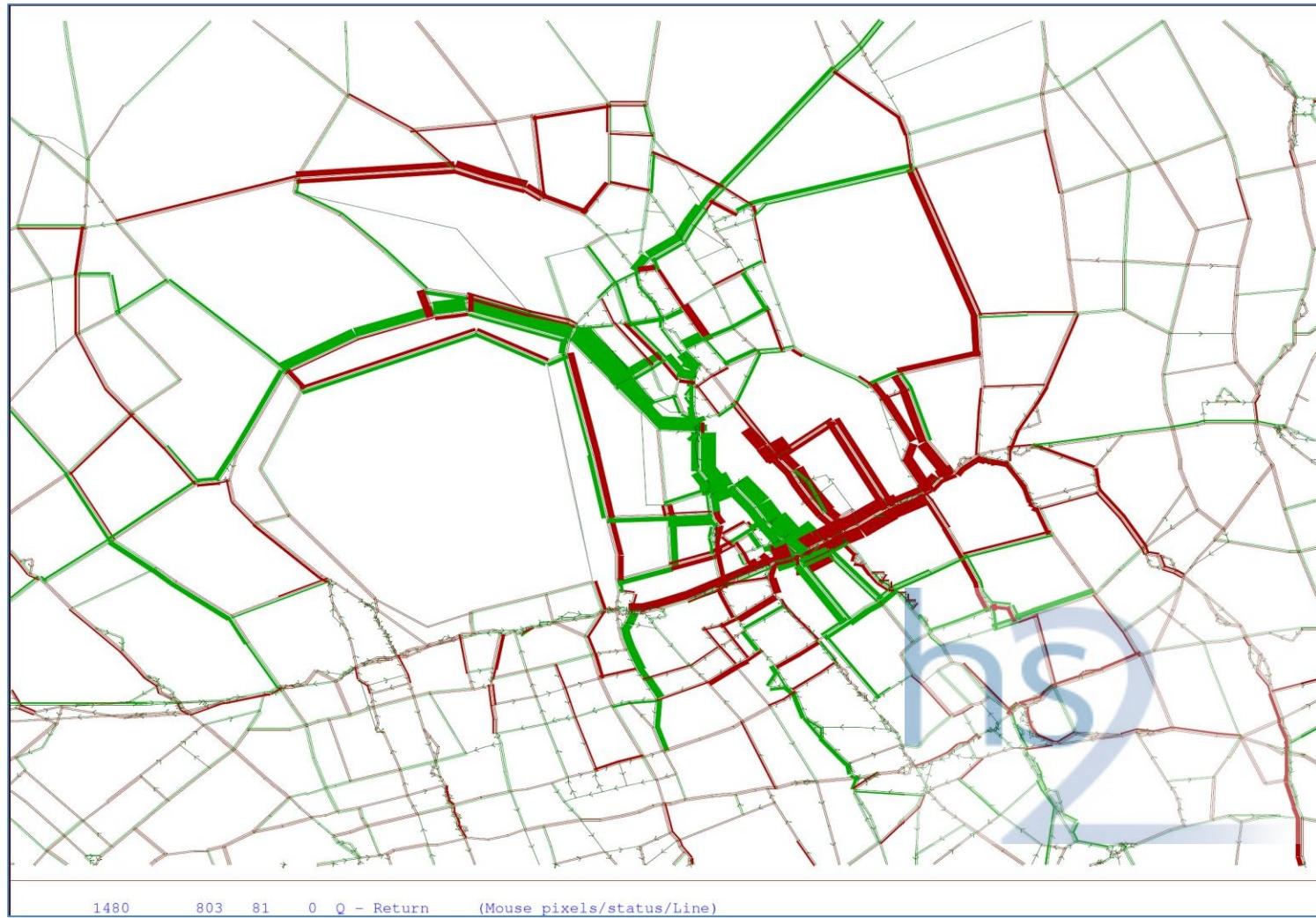


Table 6-85: 2021 Construction Scenario 1, Camden screenline AM Peak

		2012 Baseline		2021 Baseline		2021 Construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	321	10	338	11	336	12	-1	1	0%	12%
	Southbound	728	43	756	44	738	45	-17	1	-2%	3%
A5200 York Way (north of Vale Road)	Northbound	280	38	293	40	317	40	24	1	8%	1%
	Southbound	573	38	600	39	613	39	13	-1	2%	-2%
A5202 St Pancras Way (north of Baynes Street)	Southbound	716	34	698	34	675	38	-23	4	-3%	11%
Randolph Street (East of Royal College Street)	Eastbound	92	2	123	2	143	2	20	0	16%	4%
Royal College Street (south of Camden Rd)	Northbound	351	25	341	26	338	27	-3	1	-1%	3%
A503 Camden Road (south of Royal College St)	Northbound	563	32	599	32	522	33	-77	1	-13%	2%
	Southbound	880	56	929	56	911	55	-18	-1	-2%	-2%
A400 Camden Street (south of Camden Gardens)	Southbound	1203	65	1244	65	1249	64	5	-1	0%	-2%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	297	18	324	19	273	17	-50	-2	-16%	-10%
	Southbound	268	27	246	27	242	28	-4	1	-2%	2%
Hawley Road	Northbound	1014	56	1023	57	1097	59	75	2	7%	4%

		2012 Baseline		2021 Baseline		2021 Construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A502 Chalk Farm Road (west of Hawley Street)	Northbound	87	10	88	10	95	10	7	0	8%	-2%
	Southbound	840	43	849	44	924	46	75	2	9%	4%
Primrose Hill Road (south of Adelaide Road)	Northbound	341	15	331	12	323	9	-8	-3	-2%	-25%
	Southbound	640	31	638	32	642	30	4	-2	1%	-6%
Avenue Road (south of B509 Adelaide Road)	Northbound	276	10	271	10	281	13	10	2	4%	22%
	Southbound	885	22	923	22	926	22	3	0	0%	1%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	618	52	660	55	718	67	58	13	9%	23%
	Southbound	841	65	806	66	824	79	19	13	2%	20%
Loudoun Road (south of Alexandra Place)	Northbound	542	10	529	8	554	8	25	0	5%	-4%
	Southbound	314	11	328	12	339	12	11	1	3%	6%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	310	8	308	8	316	8	8	0	2%	2%
	Southbound	568	15	563	15	567	15	4	-1	1%	-6%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	558	30	572	29	582	29	10	0	2%	1%
	Southbound	252	35	272	33	273	33	1	0	0%	0%

Table 6-86: 2021 Construction Scenario 1, Camden screenline PM Peak

		2012 Baseline		2021 Baseline		2021 Construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	459	5	482	5	508	5	25	0	5%	4%
	Southbound	484	4	514	5	517	5	3	0	1%	9%
A5200 York Way (north of Vale Road)	Northbound	405	20	475	17	585	17	110	0	23%	1%
	Southbound	366	10	392	10	424	10	32	0	8%	0%
A5202 St Pancras Way (north of Baynes Street)	Southbound	555	6	562	8	582	10	20	3	4%	33%
Randolph Street (East of Royal College Street)	Eastbound	242	1	244	1	240	1	-4	0	-2%	-19%
Royal College Street (south of Camden Rd)	Northbound	485	10	477	12	477	12	1	0	0%	1%
A503 Camden Road (south of Royal College St)	Northbound	876	14	817	15	650	17	-166	2	-20%	11%
	Southbound	636	20	644	16	597	16	-47	0	-7%	-2%
A400 Camden Street (south of Camden Gardens)	Southbound	763	16	721	11	717	11	-3	0	0%	-2%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	474	17	469	13	460	11	-9	-2	-2%	-12%
	Southbound	241	1	237	1	235	1	-2	0	-1%	11%
Hawley Road	Northbound	1074	20	1054	17	1136	17	82	0	8%	-1%
A502 Chalk Farm Road (west)	Northbound	221	11	229	11	238	12	9	1	4%	11%

of Hawley Street)		2012 Baseline		2021 Baseline		2021 Construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
		Southbound	746	16	704	14	787	14	83	1	12%
Primrose Hill Road (south of Adelaide Road)	Northbound	382	6	408	6	414	5	6	0	1%	-4%
	Southbound	370	6	381	6	352	6	-29	0	-8%	-3%
Avenue Road (south of B509 Adelaide Road)	Northbound	508	4	499	5	505	5	6	0	1%	5%
	Southbound	639	7	627	6	621	12	-7	7	-1%	118%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	724	40	768	43	812	55	44	12	6%	27%
	Southbound	507	32	529	33	532	38	3	5	1%	15%
Loudoun Road (south of Alexandra Place)	Northbound	425	6	408	5	400	5	-8	0	-2%	-2%
	Southbound	392	5	424	6	440	6	16	0	4%	3%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	538	9	537	9	508	9	-29	0	-5%	-2%
	Southbound	313	4	352	4	349	4	-3	0	-1%	-1%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	576	16	563	15	581	15	17	0	3%	1%
	Southbound	499	8	481	8	486	8	6	0	1%	0%

Table 6-87: Links with traffic Increase, Scenario 1 AM Peak (impacting on CFA 2 and 3)

			2021 Baseline		2021 Construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
Location	CFA	Direction	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)
Albert Terrace	CFA2	Northbound	359	6	445	9	85	2	24%	41%
Arlington Road (north of Mornington Crescent)	CFA1 & 2	Northbound	41	0	44	0	3	0	6%	-30%
	CFA1 & 2	Southbound	157	4	37	1	-121	-3	-77%	-72%
Castle Road (east of Castlehaven Road)	CFA2	Westbound	189	8	197	8	8	1	4%	11%
	CFA2	Eastbound	87	2	123	2	36	0	41%	11%
Greenland Road (east of Camden High Street)	CFA2	Eastbound	145	6	309	10	163	4	112%	59%
Regents Park Road (between Princess Road and Gloucester Road)	CFA2	Westbound	327	18	403	21	76	3	23%	17%
	CFA2	Eastbound	140	3	167	5	27	2	19%	58%

Table 6-88: Links with traffic Increase, Scenario 1 PM Peak (impacting on CFA 2 and 3)

			2021 Baseline		2021 Construction Scenario 1		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
Location	CFA	Direction	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)
Albert Terrace	CFA2	Northbound	384	2	522	3	138	1	36%	42%
Arlington Road (north of Mornington Crescent)	CFA1 & 2	Northbound	54	0	108	1	54	0	101%	71%
	CFA1 & 2	Southbound	162	3	17	0	-144	-2	-89%	-96%
Castle Road (east of Castlehaven Road)	CFA2	Eastbound	251	3	277	3	26	0	10%	2%
	CFA2	Westbound	27	1	40	1	13	0	48%	3%
Greenland Road (east of Camden High Street)	CFA2	Eastbound	188	1	296	5	108	4	58%	449%
Regents Park Road (between Princess Road and Gloucester Road)	CFA2	Westbound	443	5	489	4	46	0	10%	-4%
	CFA2	Eastbound	129	3	170	3	41	0	32%	12%

6.5.95

### *Highway impacts (Scenario 2, 2019)*

- 6.5.96 Scenario 2 reflects the peak of construction vehicles together with a number of utility works together with the main works around the station. In addition, highway interventions in the Camden area associated with the HS2 to HS1 link, namely the Adelaide Road closure and HS1 Link works at Chalk Farm Road, are included. The highway interventions in the Camden area result in diversions to general traffic.
- 6.5.97 The diversion impacts for the AM and PM peak hours are illustrated in Figure 6-111 and Figure 6-112 respectively, and described as follows:
- flow reductions on Adelaide Road, Chalk Farm Road, Harmood Street and Prince of Wales Road due to the Camden Town to HS1 Link area interventions;
- 6.5.98 As explained elsewhere the scenario assumes Euston works, Chalk Farm Road and Adelaide Road closures will be in place at the same time. In practice, it is expected that Chalk Farm Road closure will be for under a month. However, for assessment purposes it has been modelled to understand the potential flow change impacts over the wider area.

Figure 6-111: AM peak hour (08:00 - 09:00) traffic flow impacts - Scenario 2 vs 2021 future baseline (PCUs)



Figure 6-112: PM peak hour (17:00 - 18:00) traffic flow impacts - Scenario 2 vs 2021 future baseline (PCUs)

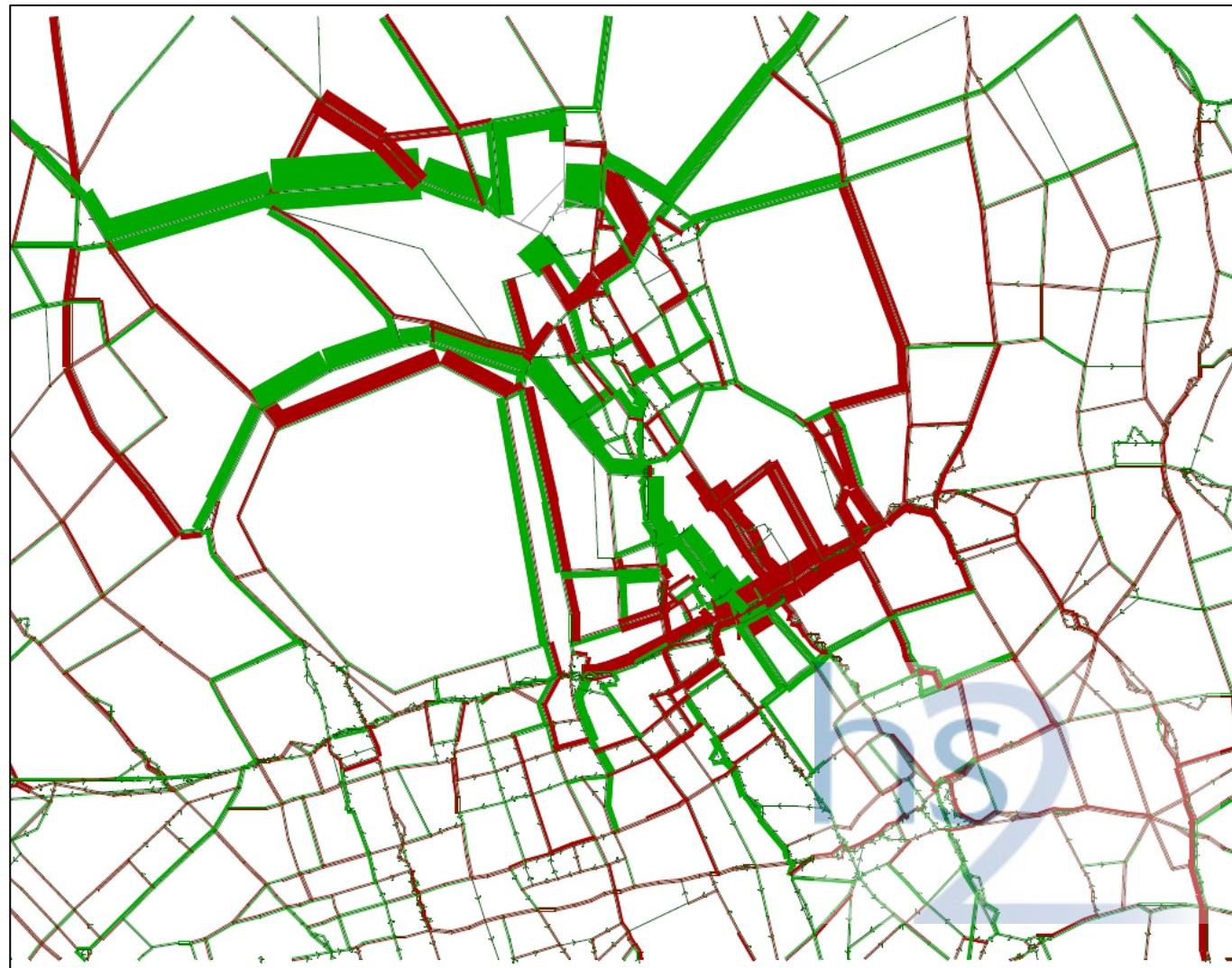


Table 6-89: 2021 Construction Scenario 2, Camden screenline AM Peak

		2012 Baseline		2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	321	10	338	11	325	12	-13	2	-4%	17%
	Southbound	728	43	756	44	742	45	-14	1	-2%	2%
A5200 York Way (north of Vale Road)	Northbound	280	38	293	40	320	40	27	0	9%	1%
	Southbound	573	38	600	39	615	38	16	-2	3%	-5%
A5202 St Pancras Way (north of Baynes Street)	Southbound	716	34	698	34	741	45	44	11	6%	33%
Randolph Street (East of Royal College Street)	Eastbound	92	2	123	2	223	3	100	0	81%	23%
Royal College Street (south of Camden Rd)	Northbound	351	25	341	26	316	41	-26	14	-8%	53%
A503 Camden Road (south of Royal College St)	Northbound	563	32	599	32	542	32	-57	0	-10%	0%
	Southbound	880	56	929	56	933	55	4	-1	0%	-2%
A400 Camden Street (south of Camden Gardens)	Southbound	1203	65	1244	65	1118	51	-127	-14	-10%	-21%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	297	18	324	19	463	23	139	4	43%	22%
	Southbound	268	27	246	27	130	27	-117	-1	-47%	-2%
Hawley Road	Northbound	1014	56	1023	57	0	0	-1023	-57	-100%	-100%
A502 Chalk Farm Road (west of Hawley Street)	Northbound	87	10	88	10	0	0	-88	-10	-100%	-100%
	Southbound	840	43	849	44	0	0	-849	-44	-100%	-100%

		2012 Baseline		2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Primrose Hill Road (south of Adelaide Road)	Northbound	341	15	331	12	229	13	-102	0	-31%	2%
	Southbound	640	31	638	32	699	35	61	3	10%	10%
Avenue Road (south of B509 Adelaide Road)	Northbound	276	10	271	10	309	12	38	2	14%	20%
	Southbound	885	22	923	22	814	25	-109	3	-12%	14%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	618	52	660	55	725	81	65	27	10%	49%
	Southbound	841	65	806	66	981	93	175	28	22%	42%
Loudoun Road (south of Alexandra Place)	Northbound	542	10	529	8	536	10	8	1	1%	16%
	Southbound	314	11	328	12	283	10	-45	-1	-14%	-13%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	310	8	308	8	315	9	7	1	2%	16%
	Southbound	568	15	563	15	565	16	2	1	0%	3%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	558	30	572	29	554	29	-18	0	-3%	1%
	Southbound	252	35	272	33	271	33	0	1	0%	2%

Table 6-90: 2021 Construction Scenario 2, Camden screenline PM Peak

		2012 Baseline		2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	459	5	482	5	518	5	36	0	7%	5%
	Southbound	484	4	514	5	499	5	-15	0	-3%	7%
A5200 York Way (north of Vale Road)	Northbound	405	20	475	17	628	17	153	0	32%	2%
	Southbound	366	10	392	10	432	10	40	0	10%	0%
A5202 St Pancras Way (north of Baynes Street)	Southbound	555	6	562	8	549	11	-13	3	-2%	44%
Randolph Street (East of Royal College Street)	Eastbound	242	1	244	1	231	3	-14	2	-6%	189%
Royal College Street (south of Camden Rd)	Northbound	485	10	477	12	545	17	68	5	14%	46%
A503 Camden Road (south of Royal College St)	Northbound	876	14	817	15	1136	21	319	6	39%	36%
	Southbound	636	20	644	16	601	14	-43	-2	-7%	-11%
A400 Camden Street (south of Camden Gardens)	Southbound	763	16	721	11	705	9	-15	-2	-2%	-17%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	474	17	469	13	474	10	5	-2	1%	-18%
	Southbound	241	1	237	1	221	2	-17	1	-7%	61%
Hawley Road	Northbound	1074	20	1054	17	0	0	-1054	-17	-100%	-100%
A502 Chalk Farm Road (west of Hawley Street)	Northbound	221	11	229	11	0	0	-229	-11	-100%	-100%
	Southbound	746	16	704	14	0	0	-704	-14	-100%	-100%

		2012 Baseline		2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Primrose Hill Road (south of Adelaide Road)	Northbound	382	6	408	6	302	6	-106	0	-26%	-2%
	Southbound	370	6	381	6	417	8	36	2	10%	38%
Avenue Road (south of B509 Adelaide Road)	Northbound	508	4	499	5	526	5	27	0	5%	3%
	Southbound	639	7	627	6	652	2	24	-3	4%	-59%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	724	40	768	43	853	72	85	29	11%	67%
	Southbound	507	32	529	33	528	63	-1	30	0%	92%
Loudoun Road (south of Alexandra Place)	Northbound	425	6	408	5	383	6	-24	0	-6%	7%
	Southbound	392	5	424	6	422	6	-3	0	-1%	-8%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	538	9	537	9	543	9	6	0	1%	-2%
	Southbound	313	4	352	4	363	4	11	0	3%	-4%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	576	16	563	15	560	15	-3	0	-1%	-1%
	Southbound	499	8	481	8	483	8	3	0	1%	0%

Table 6-91 Links with traffic increase, Scenario 2 AM Peak (impacting on CFA 2, 3 and 4)

Location	CFA	Direction	2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)
Arlington Road (north of Parkway)	CFA1 & 2	Northbound	20	0	18	0	-2	0	-9%	-33%
	CFA1 & 2	Southbound	88	4	166	15	78	10	90%	235%
B525 Avenue Road (between Prince Albert Road and Outer Circle)	CFA1 & 3	Northbound	158	1	187	1	29	0	19%	-1%
	CFA1 & 3	Southbound	475	1	699	1	224	0	47%	-1%
Bishops Bridge Road (east of Eastbourne Terrace)	CFA4	Southbound	140	5	141	20	1	15	0%	304%
Camden Gardens (east of Kentish Town Road)	CFA2	Westbound	0	0	0	0	0	0		
	CFA2	Eastbound	0	0	31	0	31	0		
Castle Road (east of Castlehaven Road)	CFA2	Westbound	189	8	140	16	-49	8	-26%	107%
	CFA2	Eastbound	87	2	13	0	-74	-1	-85%	-83%
Castlehaven Road (south of Castle Road)	CFA2	Northbound	208	19	429	26	222	7	107%	36%
	CFA2	Southbound	190	10	51	1	-139	-9	-73%	-94%
A502 Chalk Farm Road (north of Harmood Street)	CFA2 & 3	Westbound	88	10	263	20	175	10	200%	95%
	CFA2 & 3	Eastbound	849	44	320	32	-530	-12	-62%	-27%

Location	CFA	Direction	2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)
Farrier Street (east of Kentish Town Road)	CFA2	Northbound	15	0	102	0	88	0	594%	
	CFA2	Southbound	295	3	316	1	21	-2	7%	-63%
Ferdinand Street (north of Chalk Farm Road)	CFA3	Northbound	79	3	112	3	32	0	40%	5%
	CFA3	Southbound	94	1	46	1	-48	0	-51%	-14%
A41 Finchley Road (north of Circus Road)	CFA3	Northbound	600	46	668	73	68	28	11%	61%
	CFA3	Southbound	786	61	917	89	131	28	17%	45%
Gloucester Avenue (east of Parkway)	CFA3	Northbound	531	24	639	30	108	6	20%	25%
	CFA3	Southbound	74	2	169	11	95	9	128%	364%
Greenland Road (east of Camden High Street)	CFA2	Eastbound	145	6	301	11	156	5	107%	82%
A502 Haverstock Hill (north of Prince of Wales Road)	CFA3	Northbound	225	10	424	17	200	6	89%	58%
	CFA3	Southbound	295	24	338	26	42	2	14%	9%
A400 Kentish Town Road (north of Camden Gardens)	CFA2	Northbound	324	19	463	23	139	4	43%	22%
	CFA2	Southbound	246	27	161	27	-86	-1	-35%	-2%
Oval Road (south of Jamestown Road)	CFA2	Northbound	219	5	224	6	5	1	2%	25%
	CFA2	Southbound	0	0	56	0	56	0		

Location	CFA	Direction	2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)
A4201 Parkway (west of Park Village East)	CFA1 & 3	Northbound	599	20	653	9	54	-12	9%	-58%
	CFA1 & 3	Southbound	499	17	636	26	137	9	28%	51%
Primrose Hill Road (south of Adelaide Road)	CFA3	Northbound	331	12	229	13	-102	0	-31%	2%
	CFA3	Southbound	638	32	699	35	61	3	10%	10%
Primrose Hill Road/Englands Lane (north of Adelaide Road)	CFA3	Northbound	109	2	110	2	0	1	0%	34%
	CFA3	Southbound	625	29	670	30	46	1	7%	3%
Prince of Wales Road (west of Castlehaven Road)	CFA3	Northbound	482	24	149	12	-333	-11	-69%	-48%
	CFA3	Southbound	75	2	256	6	181	4	241%	223%
Regents Park Road (between Princess Road and Gloucester Road)	CFA3	Westbound	327	18	439	24	112	6	34%	36%
	CFA3	Eastbound	140	3	177	14	36	11	26%	335%
Rosslyn Hill (north of Pond Street)	CFA3	Northbound	218	15	336	17	117	2	54%	13%
	CFA3	Southbound	610	30	694	30	84	0	14%	0%
Rousden Street south of Camden Road)	CFA2	Northbound	71	0	173	0	102	0	143%	
	CFA2	Southbound	20	0	20	0	1	0	3%	1%
Royal College Street (north of Camden Road)	CFA2	Northbound	248	14	321	27	73	13	29%	94%

Location	CFA	Direction	2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)
St. John's Wood Park (south of Boundary Park Road)	CFA3	Northbound	48	3	85	4	37	1	77%	27%
	CFA3	Southbound	200	5	279	5	79	0	40%	7%
A5202 St. Pancras Way (south of Agar Grove)	CFA2	Southbound	454	21	517	30	63	9	14%	45%

Table 6-92 Links with traffic increase, Scenario 2 PM Peak (impacting on CFA 2, 3 and 4)

Location	CFA	Direction	2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)
Arlington Road (north of Parkway)	CFA1 & 2	Northbound	17	0	29	0	12	0	67%	4%
	CFA1 & 2	Southbound	134	2	293	4	159	2	119%	129%
B525 Avenue Road (between Prince Albert Road and Outer Circle)	CFA1 & 3	Northbound	494	0	501	0	7	0	1%	0%
	CFA1 & 3	Southbound	496	0	777	0	281	0	57%	0%
Bishops Bridge Road (east of Eastbourne Terrace)	CFA4	Southbound	120	1	118	17	-2	16	-2%	1474%
Camden Gardens (east of Kentish Town Road)	CFA2	Westbound	0	0	0	0	0	0		
	CFA2	Eastbound	0	0	31	0	31	0		
Castle Road (east of Castlehaven Road)	CFA2	Westbound	251	3	300	6	49	3	19%	86%
	CFA2	Eastbound	27	1	32	0	4	-1	16%	-92%
Castlehaven Road (south of Castle Road)	CFA2	Northbound	191	3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	CFA2	Southbound	236	3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A502 Chalk Farm Road (north of Harmood Street)	CFA2 & 3	Westbound	229	11	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	CFA2 & 3	Eastbound	704	14	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

Location	CFA	Direction	2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)
Farrier Street (east of Kentish Town Road)	CFA2	Northbound	234	0	644	0	410	0	175%	700%
	CFA2	Southbound	560	7	307	4	-253	-4	-45%	-49%
Ferdinand Street (north of Chalk Farm Road)	CFA3	Northbound	109	7	159	1	51	-6	47%	-83%
	CFA3	Southbound	18	0	17	0	-1	0	-6%	-5%
A41 Finchley Road (north of Circus Road)	CFA3	Northbound	851	29	951	58	100	29	12%	100%
	CFA3	Southbound	457	28	443	58	-13	30	-3%	109%
Gloucester Avenue (east of Parkway)	CFA3	Northbound	560	5	632	5	72	0	13%	3%
	CFA3	Southbound	58	1	319	12	262	11	455%	904%
Greenland Road (east of Camden High Street)	CFA2	Eastbound	188	1	271	5	83	4	44%	445%
A502 Haverstock Hill (north of Prince of Wales Road)	CFA3	Northbound	190	4	434	7	243	3	128%	60%
	CFA3	Southbound	344	5	539	12	195	7	57%	154%
A400 Kentish Town Road (north of Camden Gardens)	CFA2	Northbound	469	13	474	10	5	-2	1%	-18%
	CFA2	Southbound	237	1	252	2	15	1	6%	61%
Oval Road (south of Jamestown Road)	CFA2	Northbound	164	3	130	3	-35	-1	-21%	-23%
	CFA2	Southbound	13	0	169	3	156	3	1211%	0
A4201 Parkway (west of Park Village East)	CFA1 & 3	Northbound	725	7	592	5	-133	-1	-18%	-22%

Location	CFA	Direction	2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)
	CFA1 & 3	Southbound	263	1	248	2	-14	1	-5%	117%
Primrose Hill Road (south of Adelaide Road)	CFA3	Northbound	408	6	302	6	-106	0	-26%	-2%
	CFA3	Southbound	381	6	417	8	36	2	10%	38%
Primrose Hill Road/Englands Lane (north of Adelaide Road)	CFA3	Northbound	110	2	141	5	31	3	29%	181%
	CFA3	Southbound	355	4	420	6	65	1	18%	26%
Prince of Wales Road (west of Castlehaven Road)	CFA3	Northbound	563	7	254	6	-309	-1	-55%	-13%
	CFA3	Southbound	128	2	94	3	-34	1	-27%	74%
Regents Park Road (between Princess Road and Gloucester Road)	CFA3	Westbound	443	5	490	4	47	0	11%	-2%
	CFA3	Eastbound	129	3	157	10	28	7	21%	225%
Rosslyn Hill (north of Pond Street)	CFA3	Northbound	462	9	516	10	54	1	12%	14%
	CFA3	Southbound	453	8	606	12	153	4	34%	44%
Rousden Street south of Camden Road)	CFA2	Northbound	86	0	154	2	68	2	79%	24800%
	CFA2	Southbound	0	0	0	0	0	0	-100%	0
Royal College Street (north of Camden Road)	CFA2	Northbound	477	5	937	16	460	10	97%	197%
St. John's Wood Park (south of Boundary Park)	CFA3	Northbound	85	1	60	1	-25	0	-29%	76%

Location	CFA	Direction	2021 Baseline		2021 Construction Scenario 2		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)	All Vehicles incl. Buses (veh)	HGV (veh)
Road)	CFA3	Southbound	174	1	203	1	29	1	17%	84%
A5205 St. John's Wood Road (east of Lisson Grove)	CFA3	Westbound	483	3	464	30	-19	27	-4%	871%
A5202 St. Pancras Way (south of Agar Grove)	CFA2	Southbound	266	4	298	8	32	4	12%	94%

- 6.5.101 It can be seen that there are a substantial number of links that may be impacted upon within CFA2 and CFA3 as part of the Scenario 2 interventions, including Euston works, Chalk Farm Road interventions and Adelaide Road.

*Highway impacts (Scenario 3, 2021)*

- 6.5.102 During this stage of construction, the majority of the enabling works on the highway will be complete. Around 90% of the maximum construction activity will be present during this stage.
- 6.5.103 The diversion impacts for the AM and PM peak hours are illustrated in Figure 6-113 and Figure 6-114 respectively.

Figure 6-113: AM peak hour (08:00 - 09:00) traffic flow impacts - Scenario 3 vs 2021 future baseline (pcus)

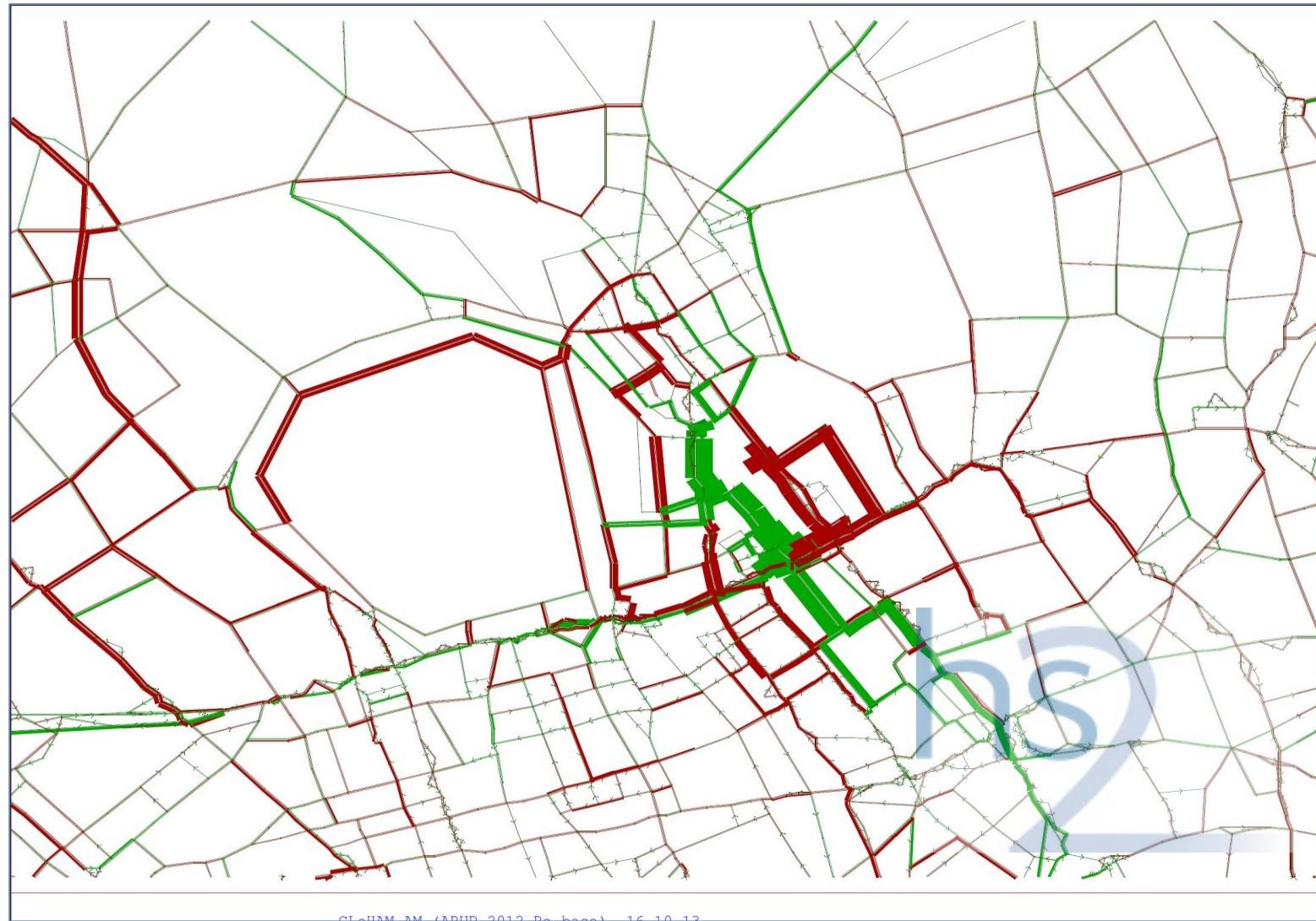


Figure 6-114: PM peak hour (17:00 - 18:00) traffic flow impacts - Scenario 3 vs 2021 future baseline (PCU)

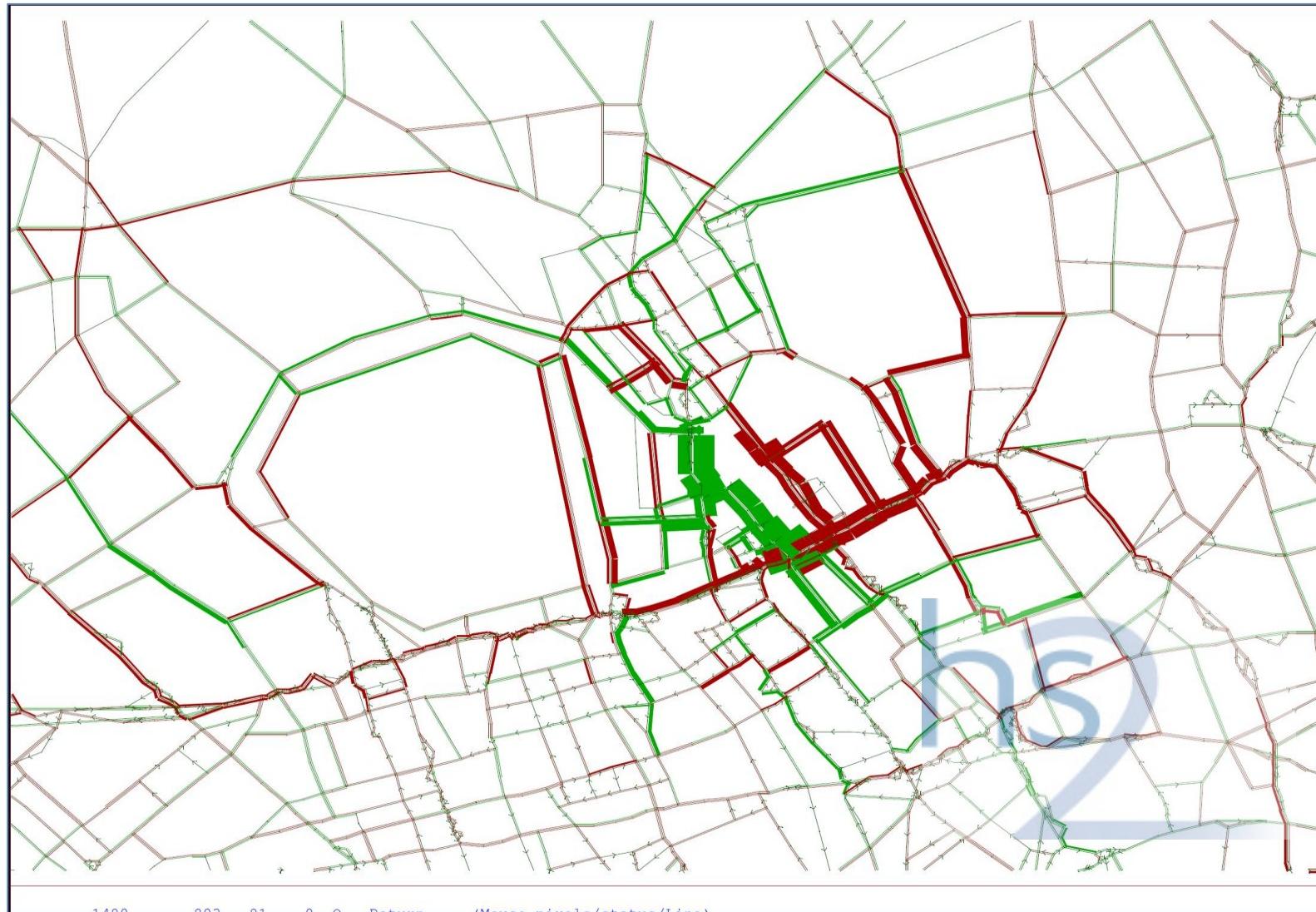


Table 6-93: 2021 Construction Scenario 3, Camden screenline AM Peak

		2012 Baseline		2021 Baseline		2021 Construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	321	10	338	11	345	12	7	1	2%	11%
	Southbound	728	43	756	44	761	45	6	1	1%	3%
A5200 York Way (north of Vale Road)	Northbound	280	38	293	40	313	40	20	0	7%	1%
	Southbound	573	38	600	39	617	39	17	-1	3%	-2%
A5202 St Pancras Way (north of Baynes Street)	Southbound	716	34	698	34	648	27	-49	-7	-7%	-21%
Randolph Street (East of Royal College Street)	Eastbound	92	2	123	2	115	2	-9	0	-7%	-8%
Royal College Street (south of Camden Rd)	Northbound	351	25	341	26	339	26	-3	0	-1%	0%
A503 Camden Road (south of Royal College St)	Northbound	563	32	599	32	602	31	3	-1	1%	-2%
	Southbound	880	56	929	56	914	62	-15	6	-2%	10%
A400 Camden Street (south of Camden Gardens)	Southbound	1203	65	1244	65	1250	65	6	0	0%	-1%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	297	18	324	19	317	19	-7	0	-2%	-2%
	Southbound	268	27	246	27	242	27	-4	0	-2%	0%
Hawley Road	Northbound	1014	56	1023	57	1045	59	22	2	2%	3%
A502 Chalk Farm Road (west of Hawley Street)	Northbound	87	10	88	10	90	7	2	-3	2%	-28%
	Southbound	840	43	849	44	871	45	21	1	2%	2%

		2012 Baseline		2021 Baseline		2021 Construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Primrose Hill Road (south of Adelaide Road)	Northbound	341	15	331	12	303	12	-28	-1	-8%	-7%
	Southbound	640	31	638	32	638	31	0	0	0%	-2%
Avenue Road (south of B509 Adelaide Road)	Northbound	276	10	271	10	286	13	15	2	5%	22%
	Southbound	885	22	923	22	920	22	-3	0	0%	-1%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	618	52	660	55	703	98	43	43	6%	79%
	Southbound	841	65	806	66	828	109	23	43	3%	66%
Loudoun Road (south of Alexandra Place)	Northbound	542	10	529	8	525	8	-4	0	-1%	-2%
	Southbound	314	11	328	12	349	13	21	1	6%	12%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	310	8	308	8	331	8	22	0	7%	1%
	Southbound	568	15	563	15	571	15	8	0	1%	-1%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	558	30	572	29	580	29	8	0	1%	1%
	Southbound	252	35	272	33	272	32	0	-1	0%	-2%

Table 6-94: 2021 Construction Scenario 3, Camden screenline PM peak

		2012 Baseline		2021 Baseline		2021 Construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A5203 Caledonian Road (south of Wheelwright Road)	Northbound	459	5	482	5	505	5	23	0	5%	4%
	Southbound	484	4	514	5	520	5	6	0	1%	1%
A5200 York Way (north of Vale Road)	Northbound	405	20	475	17	564	17	89	0	19%	1%
	Southbound	366	10	392	10	420	10	29	0	7%	0%
A5202 St Pancras Way (north of Baynes Street)	Southbound	555	6	562	8	549	7	-13	-1	-2%	-8%
Randolph Street (East of Royal College Street)	Eastbound	242	1	244	1	211	1	-33	0	-14%	-24%
Royal College Street (south of Camden Rd)	Northbound	485	10	477	12	480	12	3	0	1%	0%
A503 Camden Road (south of Royal College St)	Northbound	876	14	817	15	764	15	-53	0	-6%	-1%
	Southbound	636	20	644	16	655	17	11	0	2%	2%
A400 Camden Street (south of Camden Gardens)	Southbound	763	16	721	11	698	11	-22	0	-3%	-2%
A400 Kentish Town Road (south of Camden Gardens)	Northbound	474	17	469	13	474	12	5	0	1%	-3%
	Southbound	241	1	237	1	210	1	-28	0	-12%	0%
Hawley Road	Northbound	1074	20	1054	17	1053	17	-1	0	0%	0%
A502 Chalk Farm Road (west of Hawley Street)	Northbound	221	11	229	11	236	11	6	0	3%	0%
	Southbound	746	16	704	14	704	14	0	0	0%	0%

		2012 Baseline		2021 Baseline		2021 Construction Scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Primrose Hill Road (south of Adelaide Road)	Northbound	382	6	408	6	410	6	2	0	1%	-4%
	Southbound	370	6	381	6	364	6	-17	0	-5%	-2%
Avenue Road (south of B509 Adelaide Road)	Northbound	508	4	499	5	495	5	-4	0	-1%	0%
	Southbound	639	7	627	6	645	9	18	3	3%	58%
A41 Finchley Road (south of B503 Adelaide Road)	Northbound	724	40	768	43	758	86	-10	43	-1%	100%
	Southbound	507	32	529	33	507	72	-22	39	-4%	121%
Loudoun Road (south of Alexandra Place)	Northbound	425	6	408	5	405	5	-2	0	-1%	0%
	Southbound	392	5	424	6	446	7	22	0	5%	6%
A507 Abbey Road (south of B509 Belsize Road)	Northbound	538	9	537	9	515	8	-23	0	-4%	-3%
	Southbound	313	4	352	4	352	4	0	0	0%	1%
A5 Kilburn High Road (south of B509 Belsize Road)	Northbound	576	16	563	15	578	15	14	0	3%	1%
	Southbound	499	8	481	8	487	8	7	0	1%	1%

Table 6-95 Links with traffic increase, Scenario 3 AM Peak (impacting on CFA 2 and 3)

	CFA	Direction	2021 Baseline		2021 Construction scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Arlington Road (north of Mornington Crescent)	CFA1 & 2	Southbound	41	0	98	1	57	1	138%	
	CFA1 & 2	Southbound	157	4	184	9	27	5	17%	111%
A41 Finchley Road (south of Canon Hill)	CFA3	Northbound	637	56	656	96	19	40	3%	71%
	CFA3	Southbound	825	63	816	104	-10	42	-1%	67%
Prince Albert Road (north of Albany Street)	CFA1 & 3	Westbound	172	18	129	18	-43	0	-25%	-1%
	CFA1 & 3	Eastbound	742	45	742	50	0	5	0%	11%

Table 6-96 Links with traffic increase, Scenario 3 PM Peak (impacting on CFA 2 and 3)

	CFA	Direction	2021 Baseline		2021 Construction scenario 3		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
			All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
Arlington Road (north of Mornington Crescent)	CFA1 & 2	Southbound	54	0	185	1	131	0	244%	91%
	CFA1 & 2	Southbound	162	3	201	4	40	2	25%	61%
A41 Finchley Road (south of Canon Hill)	CFA3	Northbound	1041	37	1014	80	-27	43	-3%	115%
	CFA3	Southbound	685	22	662	65	-22	43	-3%	194%
Prince Albert Road (north of Albany Street)	CFA1 & 3	Westbound	202	6	217	6	15	0	8%	-3%
	CFA1 & 3	Eastbound	617	23	564	24	-53	1	-9%	6%

- 6.5.104 It can be seen that the scale of impacts under Scenario 3 is substantially more localised than that with Scenario 2.

### *Camden and HS1 Link (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) junction performance*

- 6.5.105 The following sections and tables set out the impact of these construction scenarios at individual junctions.

#### **York Way / Market Road**

- 6.5.106 Table 6-97 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. It can be seen that the impacts on this junction are relatively small and that it operates within capacity in all scenarios.

Table 6-97: Construction impact at York Way / Market Road junction (roundabout)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
	Flow (PCU)	DoS (%)	Max queue (PCU)									
08:00 - 09:00												
York Way (SB)	310	62	0	321	64	0	336	66	0	314	63	0
Market Road	106	18	0	107	18	0	92	16	0	108	18	0
York Way (NB)	394	43	0	420	46	0	417	45	0	409	44	0
	Baseline			Scenario 1			Scenario 2			Scenario 3		
17:00-18:00	Flow (PCU)	DoS (%)	Max queue (PCU)									
York Way (SB)	142	37	0	144	36	0	147	36	0	143	37	0
Market Road	182	24	0	181	24	0	163	22	0	176	23	0
York Way (NB)	691	76	0	726	80	0	751	81	0	730	80	0

#### **Pentonville Road / Penton Street / Claremont Square**

- 6.5.107 Table 6-98 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. This junction is currently operating close to capacity. The diversion of traffic within the construction scenarios causes the Penton Street arm (both AM and PM peaks) and Claremont Square arm (PM peak only) to operate over its practical capacity. Other arms operate well below capacity, and so some re-balancing of signal timings, carried out automatically by SCOOT, is likely to be sufficient to mitigate the impacts.

Table 6-98: Construction impact at Pentonville Road / Penton Street / Claremont Square junction (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
08:00 - 09:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Penton Street	325	88	8	376	104	9	277	100	7	295	101	7
Pentonville Road (WB)	808	65	12	823	66	12	831	67	12	812	66	12
Claremont Square	260	54	5	272	65	5	275	63	5	268	63	5
Pentonville Road (EB)	1125	66	16	1143	66	16	1148	66	16	1147	67	16
	Baseline			Scenario 1			Scenario 2			Scenario 3		
17:00-18:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Penton Street	120	96	5	125	99	5	121	100	5	124	100	5
Pentonville Road (WB)	851	63	11	865	64	11	869	65	11	862	64	11
Claremont Square	225	88	5	230	94	5	230	95	5	229	93	5
Pentonville Road (EB)	963	50	12	954	49	12	978	50	12	959	49	12

### Royal College Street / Camden Road

6.5.108 Table 6-99 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. It can be seen that the impacts on junction operation are relatively small, except for the Camden Road southbound and northbound approaches in the PM peak, though even these arms operate well below capacity in all scenarios.

Table 6-99: Construction impact at Royal College Street / Camden Road (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
08:00 - 09:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Camden Road (SB)	1034	68	12	1035	67	12	1089	72	13	1035	68	12
Royal College Street (NB)	381	39	5	379	38	5	370	38	4	379	38	5
Camden Road (NB)	673	41	7	599	36	7	635	38	7	674	41	7

	Baseline			Scenario 1			Scenario 2			Scenario 3		
17:00-18:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Camden Road (SB)	699	51	8	730	51	9	681	75	8	725	53	9
Royal College Street (NB)	503	48	6	504	48	6	577	54	7	506	48	6
Camden Road (NB)	877	56	10	714	45	8	1220	79	14	820	53	9

### Chalk Farm Road / Castlehaven Road

- 6.5.109 Table 6-100 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. This junction is currently operating close to capacity. The diversion of traffic within Scenario 1 causes the degree of saturation on the Chalk Farm Road southbound arm to increase in both peak periods to 90%. This is not considered a substantial impact.

Table 6-100: Construction impact at Chalk Farm Road / Castlehaven Road (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
08:00 - 09:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
A502 Camden High Street	341	99	7	334	98	7	0	0	0	335	99	7
A502 Chalk Farm Road (SB)	931	84	6	1003	90	6	N/A	N/A	N/A	948	86	6
	Baseline			Scenario 1			Scenario 2			Scenario 3		
17:00-18:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
A502 Camden High Street	614	97	11	612	97	11	0	0	0	614	97	11
A502 Chalk Farm Road (SB)	750	82	7	834	90	7	N/A	N/A	N/A	749	81	7

### Kentish Town Road / Hawley Crescent

- 6.5.110 Table 6-101 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. Flows and degrees of saturation increase in the morning and evening peak periods on Kentish Town Road northbound. However, the only period of concern is the PM peak within Scenario 2, in which the degree of saturation reaches 94%. However, this is not considered a substantial impact.

Table 6-101: Construction impact at Kentish Town Road / Hawley Crescent (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
08:00 - 09:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Kentish Town Road (SB)	274	43	3	270	42	3	158	24	2	270	42	3
Kentish Town Road (NB)	374	62	5	322	53	4	563	90	7	366	60	4
	Baseline			Scenario 1			Scenario 2			Scenario 3		
17:00-18:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Kentish Town Road (SB)	239	36	3	237	36	3	223	34	2	211	32	2
Kentish Town Road (NB)	516	88	7	508	86	7	556	94	7	519	89	7

### Parkway / Arlington Road

6.5.111 Table 6-102 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. Flows and degrees of saturation increase on the Arlington Road southbound arm in Scenario 2 only. However, the only period of concern is the PM peak, in which the degree of saturation reaches 91%.

Table 6-102: Construction impact at Parkway / Arlington Road (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
08:00 - 09:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Arlington Road (SB)	92	28	1	92	28	1	180	55	3	120	36	2
Arlington Road (NB)	4	1	0	4	1	0	4	1	0	4	1	0
Parkway (NB)	747	36	7	756	36	7	760	34	6	811	39	7
	Baseline			Scenario 1			Scenario 2			Scenario 3		
17:00-18:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Arlington Road (SB)	136	41	2	99	30	2	297	91	5	132	40	2
Arlington Road (NB)	13	3	0	4	1	0	8	2	0	6	1	0
Parkway (NB)	794	38	7	767	36	7	813	38	7	843	40	7

## Haverstock Hill / England's Lane

6.5.112 Table 6-103 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. Scenario 1 shows minor changes to junction operation. Within Scenario 2 flows and degrees of saturation increase in both peak periods on Haverstock Hill northbound, though the degree of saturation is well within capacity, and on England's Lane where the degree of saturation reaches 105%. However, the flows concerned are relatively low and only a small increase in queuing is indicated by the model. Therefore this is not considered a substantial impact.

Table 6-103: Construction impact at Haverstock Hill / England's Lane (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Haverstock Hill (SB)	636	102	8	609	100	8	486	102	6	621	100	8
Haverstock Hill (NB)	245	34	3	270	38	3	466	65	6	252	35	3
England's Lane	112	34	2	110	33	2	122	105	2	107	32	2
Baseline			Scenario 1			Scenario 2			Scenario 3			
17:00-18:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Haverstock Hill (SB)	551	81	7	554	81	7	550	86	7	545	80	7
Haverstock Hill (NB)	206	29	3	214	30	3	467	64	7	209	29	3
England's Lane	112	34	2	120	36	2	157	101	3	111	34	2

## Gloucester Avenue / Oval Road

6.5.113 Table 6-104 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. Within both tests and both peak periods the degree of saturation on Gloucester Avenue southbound increases from their existing relatively high level to as much as 108%. However, the increase in queuing is small.

Table 6-104: Construction impact at Gloucester Avenue / Oval Road (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
08:00 - 09:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Oval Road	0	0	0	0	0	0	56	3	1	0	0	0
Gloucester Avenue (NB)	565	48	9	601	51	9	692	58	11	586	50	9
Gloucester Avenue (SB)	227	91	5	253	102	5	270	108	5	230	93	5
	Baseline			Scenario 1			Scenario 2			Scenario 3		
17:00-18:00	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Oval Road	13	1	0	2	0	0	172	9	2	11	1	0
Gloucester Avenue (NB)	577	51	9	606	53	9	659	57	10	584	51	9
Gloucester Avenue (SB)	188	82	4	226	98	5	222	102	5	189	83	4

### Adelaide Road / Primrose Hill Road

6.5.114 Table 6-105 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. It can be seen that the impacts on this junction are relatively small and that it operates below capacity generally, with minor increases on Adelaide Road eastbound in scenario 1 for the AM peak taking the degree of saturation over 90%.

Table 6-105: Construction impact at Adelaide Road / Primrose Hill Road junction (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 AM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Primrose Hill Road (SB)	662	74	7	671	75	7	719	76	7	663	74	7
Adelaide Road (WB)	449	56	5	469	59	5	46	4	0	477	60	5
Primrose Hill Road (NB)	345	46	4	333	48	3	244	30	2	316	42	3
Adelaide Road (EB)	723	87	8	758	91	8	350	40	4	733	89	8

	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 PM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Primrose Hill Road (SB)	359	42	4	345	40	4	438	49	5	346	40	4
Adelaide Road (WB)	333	40	4	421	51	4	6	1	0	355	43	4
Primrose Hill Road (NB)	416	58	4	422	62	4	314	39	3	418	59	4
Adelaide Road (EB)	705	80	7	748	86	8	298	33	3	693	79	7

### Adelaide Road / Haverstock Hill

6.5.115 Table 6-106 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. It can be seen that there is a reduction in flow on Adelaide Road in Scenario 2, reflecting the temporary closure. Otherwise the impacts on this junction are relatively small, and it operates within capacity in every test and time period.

Table 6-106: Construction impact at Adelaide Road / Haverstock Hill junction (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 AM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Haverstock Hill	322	17	2	318	17	2	349	18	3	321	17	3
Chalk Farm Road	536	20	1	558	21	1	240	9	2	564	21	1
Adelaide Road	629	51	7	702	57	8	16	1	0	644	52	7
	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 PM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Haverstock Hill	302	15	2	330	17	3	459	23	3	310	16	2
Chalk Farm Road	455	17	1	529	20	1	330	12	2	476	18	1
Adelaide Road	649	55	7	773	65	9	6	1	0	640	54	7

## Haverstock Hill / England's Lane

- 6.5.116 Table 6-107 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. It can be seen that the impacts on this junction are relatively small in tests 1 and 3, but in Scenario 2 the degree of saturation on the England's Lane approach exceed 100%. Mitigation in the form of advanced warning signs and signal optimisation are considered appropriate.

Table 6-107: Construction impact at Haverstock Hill / England's Lane junction (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
	Flow (PCU)	DoS (%)	Max queue (PCU)									
2021 AM												
Haverstock Hill (SB)	636	102	8	609	100	8	486	102	6	621	100	8
Haverstock Hill (NB)	245	34	3	270	38	3	466	65	6	252	35	3
England's Lane	112	34	2	110	33	2	122	105	2	107	32	2
	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 PM	Flow (PCU)	DoS (%)	Max queue (PCU)									
	551	81	7	554	81	7	550	86	7	545	80	7
Haverstock Hill (NB)	206	29	3	214	30	3	467	64	7	209	29	3
England's Lane	112	34	2	120	36	2	157	101	3	111	34	2

## Adelaide Road / Avenue Road

- 6.5.117 Table 6-108 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. It can be seen that the impacts on this junction are relatively small and that it operates well within capacity in every test and time period.

Table 6-108: Construction impact at Adelaide Road / Avenue Road junction (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 AM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Avenue Road (SB)	2541	45	8	2601	46	8	2466	43	8	2611	47	8
Adelaide Road (WB)	761	35	9	745	35	9	451	21	5	770	36	9
Avenue Road (NB)	283	17	3	294	18	3	324	20	4	300	18	3
	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 PM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Avenue Road (SB)	2127	41	6	2146	41	6	1858	35	7	2151	41	7
Adelaide Road (WB)	665	29	8	684	30	8	467	20	6	692	30	8
Avenue Road (NB)	507	33	6	512	33	6	537	35	6	502	33	6

### Finchley Road / Avenue Road

6.5.118 Table 6-109 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. It can be seen that the impacts on this junction are relatively small and that it operates well within capacity in every test and time period.

Table 6-109: Construction impact at Finchley Road / Avenue Road junction (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 AM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Finchley Road (SB)	1498	31	12	1518	32	12	1429	30	12	1546	32	13
College Crescent	766	21	0	787	22	0	867	24	0	785	22	0
Finchley Road (NB)	1439	48	17	1493	50	17	1460	49	17	1525	51	18
	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 PM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Finchley Road (SB)	1195	25	10	1199	25	10	1061	23	9	1213	26	10
College Crescent	603	17	0	599	17	0	603	17	0	610	17	0
Finchley Road (NB)	2008	43	17	2012	43	17	1977	42	16	2028	44	17

### Boundary Road / Finchley Road

6.5.119 Table 6-110 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. It can be seen that the impacts on this junction are relatively small and that it operates well within capacity in every test and time period.

Table 6-110: Construction impact at Boundary Road / Finchley Road junction (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 AM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Finchley Road (SB)	902	25	7	932	26	7	1107	31	8	967	27	7
Boundary Road (WB)	74	25	1	74	25	1	114	38	2	83	28	2
Finchley Road (NB)	799	22	6	872	24	6	909	25	7	901	25	7
Boundary Road (EB)	199	66	4	194	65	4	214	71	4	198	66	4

	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 PM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Finchley Road (SB)	596	16	4	603	17	4	627	17	4	613	17	4
Boundary Road (WB)	100	36	2	86	31	2	78	28	1	87	31	2
Finchley Road (NB)	957	26	7	996	27	7	1090	30	8	989	27	7
Boundary Road (EB)	170	61	3	161	58	3	170	61	3	167	60	3

### Boundary Road / Loudoun Road

- 6.5.120 Table 6-111 below shows the performance of the junction under three construction scenarios alongside the 2021 Baseline. It can be seen that the impacts on this junction are relatively small and that it operates well within capacity in every test and time period. Consequently no mitigation is considered necessary.

Table 6-111: Construction impact at Boundary Road / Loudoun Road junction (signals)

	Baseline			Scenario 1			Scenario 2			Scenario 3		
2021 AM	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)	Flow (PCU)	DoS (%)	Max queue (PCU)
Loudoun Road (SB)	341	18	0	352	19	0	294	16	0	363	20	0
Boundary Road (WB)	139	8	0	152	8	0	187	10	0	163	9	0
Loudoun Road (NB)	7	0	0	4	0	0	6	0	0	5	0	0
Boundary Road (EB)	362	35	0	394	36	0	387	36	0	361	35	0

	Baseline			Scenario 1			Scenario 2			Scenario 3		
	Flow (PCU)	DoS (%)	Max queue (PCU)									
2021 PM												
Loudoun Road (SB)	432	24	0	447	25	0	430	24	0	454	25	0
Boundary Road (WB)	228	13	0	222	13	0	207	12	0	222	13	0
Loudoun Road (NB)	1	0	0	1	0	0	1	0	0	1	0	0
Boundary Road (EB)	352	29	0	335	28	0	330	28	0	342	28	0

- 6.5.121 The changes in traffic flows will also lead to increases in delays at the junctions set out in the tabulation below and on Figure 6-82. The impact is measured as an increase in the ratio of volume to capacity where:
- the VoC for an approach arm increases to over 0.87 during the construction of the Proposed Scheme and the increase is 2% or more; or
  - the VoC for an approach arm is over 0.87 in the baseline and during the construction of the Proposed Scheme increases by 2% or more.
- 6.5.122 This indicates that three junctions are only triggered in scenario 1, seven only in scenario 2 and two only in scenario 3 with the remainder being triggered in more than one scenario. Six junctions are triggered in all 3 scenarios. Four junctions have a VoC over 100%, namely A5205 Prince Albert Road / A4201 Parkway, A401 Theobald's Road / A5200 Gray's Inn Road, Tavistock Square / Bedford Way and A501 Pentonville Road / Claremont Square and these are triggered generally in one time period only.
- 6.5.123 Those junctions triggered show a very close correlation with the roads that experience an increase in vehicle flow, either as a result of construction traffic or highway interventions with the majority close to Euston station. Scenario 2, with the highest level of construction traffic and a large number of highway interventions has the greatest impact on congestion.
- 6.5.124 A400 Kentish Town Road / Hawley Crescent in CFA2 experiences increased congestion in Scenario 2, resulting from the HS1 works with A502 Chalk Farm Road / A502 Hawley Road in CFA2 experiencing increased congestion in Scenario 1.

Table 6-112: Scenario 1, 2 and 3 - triggered junctions within CFA 2 and 3

CFA	Junction	AM peak hour (08:00 - 09:00)				PM peak hour (17:00 - 18:00)			
		BL	Test 1	Test 2	Test 3	BL	Test 1	Test 2	Test 3
CFA1 & 3	A5205 Prince Albert Road / A4201 Parkway	48.4	45.6	104.1	54.1	82.1	69.5	102.6	79.8
CFA2	A501 Pentonville Road / Claremont Square	88.0	103.6	100.4	100.9	95.6	99.5	99.8	99.6
CFA2	A502 Chalk Farm Road / A502 Hawley Road	83.8	90.4	-	85.7	81.5	89.8	-	81.5
CFA2	A400 Kentish Town Road / Hawley Crescent	61.5	52.7	90.2	60.2	88.4	86.1	93.8	88.7
CFA2	A4201 Parkway / Arlington Road	27.7	27.8	54.9	36.2	40.8	29.7	90.5	39.6
CFA3	A502 Haverstock Hill / Parkhill Road	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
CFA3	Regents Park Road / Oval Road	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

### *Accidents and safety*

- 6.5.125 As a result of potential diversion traffic increasing the flows on diversionary routes, routes, the following links are expected to potentially have an increased risk of accidents:
- Royal College Street - scenario 2;
  - Chalk Farm Road - scenario 2;
- 6.5.126 All new site access and egress locations will be subject to a safety assessment as part of the design process and all vehicle movements into and out of the site are to be under banksman control as necessary.

### *Rail*

- 6.5.127 The strategic rail network and services in CFA2 and CFA3 are expected to remain unaffected during the construction stage and no permanent impacts are anticipated.
- 6.5.128 The diversion of the NLL tracks from the south side to the north side of the affected bridges and viaducts in this area will require rail possessions. Up to 163 possessions will be required, which will mainly be mid-week night-time possessions but may require one 7-day blockade at Chalk Farm Road and seven 54-hour possessions. Since these will generally be overnight and weekend closures, the impacts on public transport delay is considered to be not substantial. Otherwise the local rail network and services in CFA2 and CFA3 will be unaffected during the construction stage.

### *Local bus and coach*

- 6.5.129 It is expected that the construction of the Proposed Scheme will require bus route diversions. A number of bus routes will need to be diverted. Bus routes 24, 27, 31, 168 and limited stop-commuter service 748 will be diverted by up to 1.5 kilometres for more than four weeks as a result of the Chalk Farm Road closure. This could result in delays to services of up to three minutes (assuming a constant 20mph speed).
- 6.5.130 It is expected that the construction of the Proposed Scheme will require bus route diversions around the temporary closure of Adelaide road for the construction of the Adelaide Road vent shaft. This will affect bus route 31, operating at 12 buses per hour in each direction, with a net diversion distance of 461m. This is expected to be in place for 4 months. Night bus routes N28 and N31, operating at much lower frequencies, will be similarly affected at night.
- 6.5.131 During the temporary closure of Adelaide Road the bus stops near the worksite will be removed. The nearest alternative bus stops are over 100m distance away. During the remainder of the construction period it will be necessary to relocate both eastbound and westbound bus stops, each by a relatively short distance.
- 6.5.132 Construction of the proposed scheme will require the relocation of bus stops and bus facilities which will vary according to bus route and diversion. For the Chalk Farm Road closure, the relocation of the bus stops serving in excess of 20 buses per hour is likely to be located over 200m from the original stops for a period in excess of four months.

### *Public transport interchanges*

- 6.5.133 A temporary impact on pedestrian physical linkage at Camden Road Overground Station is expected due to bus route diversions and bus stop changes. The duration of the main impact is expected to be less than four weeks and pedestrian access to the station will be maintained throughout the duration of the construction works.
- 6.5.134 Aside from this, public transport interchanges in CFA2 are expected to remain unaffected during the construction stage and no permanent impacts are anticipated.

### *Pedestrians, cyclists and equestrians*

- 6.5.135 Pedestrian and cyclist diversions are described above. The impacts are anticipated to be as follows:
- St Pancras Way/Baynes Street north and south;
  - Camden Road north and south;

- Randolph Street north and south; and
- Chalk Farm Road.

- 6.5.136 The longest pedestrian diversion required will be associated with the Chalk Farm Road closure at around 530m or nearly eight minutes' walk time affecting over 1000 pedestrians per day.
- 6.5.137 In terms of severance to pedestrians and cyclists due to extended travel distance, the impact caused by each main or satellite construction compound will vary according to their operation, the road closures associated with these and the length of the pedestrian diversions or realignment required.
- 6.5.138 The longest pedestrian diversion will be associated with the Chalk Farm Road closure at around 520m.
- 6.5.139 At Alexandra Place the diversion will be a maximum of 107m, affecting a peak flow of 100 pedestrians per hour, and be in place for up to 2.5 years. This will give an increase in journey time of less than two minutes.
- 6.5.140 Cyclist diversions will be the same as for general traffic although cyclists also have the option of dismounting and following the pedestrian diversion. At Adelaide Road up to 33 cyclists per hour will be impacted, and up to 100 cyclists per hour at Alexandra Place.
- 6.5.141 There are no designated routes for equestrians in this CFA. Equestrians will therefore be affected in the same way as pedestrians and cyclists.
- 6.5.142 No impacts are anticipated on users of the Regent's Canal.
- 6.5.143 There are no designated routes for equestrians in this CFA. Equestrians will therefore be affected in the same way as pedestrians and cyclists.

### *Parking and loading*

- 6.5.144 Parking suspensions include:
- Randolph Street north and south – up to 19 permit-holder parking bays and approximately eight pay and display bays suspended for approximately six weeks; and
  - Castlehaven Road - a Barclays Cycle Hire docking station sufficient to hold 29 cycles and seven cycle stands for possible durations of more than four weeks. Alternative provision is located in Hawley Mews, but this is in excess of 250m away
  - during partial closure of the B509 Adelaide Road for the construction of the Adelaide Road vent shaft some parking bays on the south side will suspended to accommodate a relocated bus stop;

- during full closure of the B509 Adelaide Road, suspension of parking bays for 30 cars on the south side of England's Lane and a motorcycle bay for 11 motorcycles will be required to minimise traffic congestion from diverted traffic, for period of four months; and
- at the Alexandra Place site, 17 car parking spaces will be lost for up to 2.5 years.

6.5.145 The loss of parking at Rousden Street will be less than 10 spaces and at other locations only short-term.

6.5.146 The CoCP proposes measures to reduce or prevent staff parking on public roads near worksites. Consequently there should be no additional impact from staff parking.

### *Avoidance and mitigation*

6.5.147 The engineering and construction design has been conceived in order to minimise the impacts during construction. All construction activity will be undertaken in accordance with the draft CoCP which seeks to minimise adverse impacts. The measures in the draft CoCP include clear controls on vehicle types, hours of site operation, and routes for heavy goods vehicles, to reduce the impact of road based construction traffic. In order to achieve this, generic and site specific traffic management measures will be implemented during the construction of the project on or adjacent to public roads, bridleways, footpaths and other PRoW affected by the Proposed Scheme as necessary.

6.5.148 Where reasonably practicable, the number of private car trips to and from the site (both workforce and visitors) will be reduced by encouraging alternative modes of transport or vehicle sharing. A framework construction workers travel plan will be produced by each principal contractor which will aim to encourage the use of sustainable modes of transport and reduce the impact of workforce traffic on the highway network. The reductions in impacts arising from the travel plan measures have not been included in the assessment as presented in this report.

6.5.149 Rail replacement services will be provided as necessary when rail possessions are in place.

6.5.150 No further traffic and transport mitigation measures during construction of the Proposed Scheme are considered necessary, based on the outcomes of this assessment.